

# Antiquity

## A Quarterly Review of Archaeology

---

VOL. XI No. 44

DECEMBER 1937

---

### Editorial Notes

THE PLAN FOR AVEBURY, which we print on pages 490-3, has been issued to the public over the names of a number of distinguished persons as an appeal for funds 'to preserve the surroundings of Avebury by means of a Planning Scheme'. The sum of £11,000 is required, and the scheme will be controlled by representatives of certain public bodies and by the National Trust. We most heartily commend it to our readers and (quoting the words of the appeal) to 'all those who love the English countryside, who reverence our long history, and who wish to see what is still unspoilt preserved for our children's children'. The address for subscriptions is The Avebury Preservation Fund, Barclays Bank, 23 Grosvenor Gardens, London, S.W. 1.

We are indebted to Major G. W. G. Allen for allowing us to reproduce as our frontispiece the very fine air-photograph of Avebury which he has taken quite recently.



The scheme is the most important of its kind that has been submitted to the country since the land round Stonehenge was acquired for the National Trust ten years ago, for about three times the amount now needed. It would be possible, of course, to suggest minor improvements in it, such as the inclusion of part of Avebury Down, with its little circle of stones and its prehistoric hollow road lined with sarsens,

## ANTIQUITY

and we earnestly hope that it may be found possible to include this area. The land is of little value, being rough pasture that has never, since prehistoric times, been cultivated—which is why it is of such interest to archaeologists and others. But for the rest the scheme is probably the best that could have been devised to secure for all time a beautiful fragment of historic England.



Nearly 300 years have passed since the day in January 1649 when Avebury was discovered by John Aubrey. What a day that must have been for him! Nowadays his successors, the field-archaeologists who roam the countryside with Ordnance Maps, have for the most part to be content with such minor monuments as round barrows; and it is for them a red-letter day if they can bag a new long barrow or a camp. The harvest has been gathered in by a long succession of field-workers, and their discoveries have been, in great measure, embodied in the national maps. We in England have now arrived at a fairly satisfactory state of affairs in such matters, by a characteristic compromise between the State and the individual. The process consists of discovery, record of position, scheduling, and finally (in certain instances) of excavation. We even record the exact position of important finds of objects; in this the co-operation of museums, learned societies, and individuals with the Ordnance Survey has reached a high point of efficiency.



Scotland is perhaps one of the most promising parts of Britain awaiting the field-archaeologist. It would not be correct to imply that many major sites remain to be found there, though Mr Ian Richmond's rediscovery of a lost Roman fort at Fendoch, near Crieff, shows that such possibilities cannot be ruled out. Nevertheless it is certain that a whole mass of minor antiquities are still unrecorded on the maps, and the field-archaeologist may expect to be amply rewarded. A great many ancient monuments were recorded by the compilers of the Statistical Account of Scotland in the 18th century, before the Ordnance Maps existed. When the national survey was undertaken, many of these sites were incorporated on the maps, and the surveyors,



## EDITORIAL NOTES

in those more leisurely times, often took a great deal of trouble to locate them. But they had necessarily to rely mainly upon the help of local archaeologists, and when such were not to be found in a district some sites were naturally left out. For instance, until recently it was not known that there is a small group of long cairns in Strathearn, though some of them were mentioned in the Statistical Account ; and another example also mentioned there, in the extreme south of Roxburghshire, was only located (by the present writer) last summer.



The difficulties of the pre-Ordnance Survey field-archaeologists can best be appreciated by a visit to countries which still have no large-scale maps. They had no means except verbal description of recording the exact position of their discoveries ; no doubt they did their best, but their descriptions are often vague and baffling. One encounters precisely such difficulties today in Balkan lands which archaeologically are almost in the same condition as England was in the 17th century. It was the good fortune of the writer to explore part of Bulgaria last autumn, in the company of two colleagues who are familiar with the field antiquities of that country. As one drove along the roads in a primitive four-wheeled cart one passed rows of round barrows placed on the hills just like those of Wessex. Near one such group was a miniature Carnac, consisting of some twenty huge stones, some standing, some fallen, some lying in pits dug for them by the farmer who desired to get rid of them. It was curious to find the same method adopted here as at Avebury during the 19th century and before. One felt as if one were travelling in time back to the days when Long, Colt Hoare and Stukeley denounced the vandalism they were powerless to prevent.



We discussed the problem of preservation on the spot. We looked forward to the time when every country will treasure such relics of its ancient past ; we had an advantage over the older British archaeologists, for whereas they could look forward to such a day with the eye of faith only—for in their time national protection of ancient monuments did not exist—we could point to a historical enlightenment that had actually occurred elsewhere in Europe. The main difficulty was one of

## ANTIQUITY

education. For national protection is a function of public opinion ; where no body of educated opinion exists, when no support for such measures can be found even in quarters where it might properly be expected, there vandalism and wanton destruction must inevitably achieve their fatal results. The remedy is one which lies beyond the reach of the archaeologists most concerned. Their colleagues in other lands can, however, help them by various methods ; and it is partly with this intention that these remarks have been printed here. Bulgaria has a rich heritage of ancient history, and the remains are still for the most part wonderfully perfect. Her museums are served by devoted enthusiasts whose work is a labour of love. But they need more support if they are to achieve for their country all that they could accomplish if only the means to do so were available.



The completion of the eleventh volume of ANTIQUITY brings us once more to the time when we ask our Subscribers for the renewal of their support and their attention to the notice printed below. We would also add that in more than one way it is a great help if they will be good enough to make an early response to this intimation. Each year we have to send out more than one reminder, a trouble which might be spared.



### VOLUME XII for 1938

*A renewal form for subscriptions for the new volume is inserted in this number. It is omitted from copies sent to subscribers who pay through their banks or who have paid in advance for 1938.*



## Some Anglo-Saxon Potters

by J. N. L. MYRES

THE study of Anglo-Saxon pottery in the pagan period in England has probably received less attention, and has certainly made less progress, than that of any other archaeological epoch. Our knowledge of Neolithic, Bronze Age and Iron Age ceramics has been revolutionized in the last ten or fifteen years, and it is now possible to use the pottery of these periods, as it should be possible to use the pottery of any period, as the most significant and sensitive element in the cultural evidence for the time. With some types of Roman pottery it is possible to go still further, and to treat them not only as a barometer to indicate the varying cultural pressures, so to speak, of different areas and sites, but even as a chronometer for the close dating of the different phases in their occupation. But with Anglo-Saxon pottery at present we can do none of these things. Apart from certain rare and peculiar forms recently studied by Roeder,<sup>1</sup> we know about as much and about as little about it as was known when Neville published his *Saxon Obsequies* in 1852, or Kemble first drew attention to the continental parallels in a pioneer paper in *Archaeologia* in 1856.

The reasons for this neglect are easier to point out than to eliminate, and it is not the purpose of this paper either to describe or to deplore them. Anglo-Saxon pottery has generally been regarded as ugly and uncouth; the extraordinary variety and spontaneity of its ornamentation has made systematic classification difficult; and hardly any of the numerous long series of urns in our Museums have been published with any attempt at adequacy, even in cases where the remaining contents of a cemetery have been properly put on record. The object of this article is to make a brief excursion into one of the byways of the subject, and in so doing to suggest that Anglo-Saxon pottery deserves more attention than it has received. It may never be possible to get the same kind of information from it that the students of other periods extract

---

<sup>1</sup> See *Röm.-germ. Kommission*, 1928, XVIII, p. 149, for his article on 'window urns'; and *Mannus Ergänzungsband*, 1928, VI, p. 190, for his study of 'spout-handled urns'.



## ANTIQUITY

from their pottery : but it may be found to possess some peculiar if not unique features of its own.

One of the commonest types of ornamentation on Anglo-Saxon pottery is that which is produced by the use of stamps made of bone, wood, or metal, which were impressed on the soft surface of the pot before baking. The history of this style of decoration is somewhat obscure : it had been commonly used on various classes of provincial pottery within the Roman Empire in the 4th century, as, for example, on the products of the New Forest industries during the last phase of Roman rule in Britain. It appears also in the 4th century, if somewhat sparingly, on the purely native pottery of the Saxon homelands between the Elbe and the Weser, and again in Frisia which lay between this region and the frontiers of the Empire on the Rhine. Whether it was originally a barbarian device, or, as is much more probable, a borrowing by the barbarians from Roman provincial fashions, need not concern us. It is in any case clear that stamped decoration caught the fancy of potters both within and without the Empire at this time and was becoming increasingly popular in the period when migration to Britain was taking place. And in no part of Western Europe did it become more popular afterwards than in Britain. Eventually indeed, perhaps in the first half of the 6th century, it came to dominate all other forms of ornament, and largely to supersede the knobs and bosses of the purely barbaric tradition in the invaders' continental homes.

In Britain itself the focus of this development was in the Midlands in the lands radiating from the Wash and the Fens, from Cambridge and Bedford on the south through Northants, Warwickshire, and Leicestershire and westwards to the middle Trent. Here Angle and Saxon traditions were thoroughly mixed, especially in the south. Among the Humbrenses of Yorkshire and Lincolnshire, and in East Anglia, on the other hand, the dominant Angle strain reduced the prevalence of stamped ornament to some extent, for it had never been in vogue among the continental Angles. But even in the Anglian parts of Britain its occurrence is far more common than it had been on the continent, even in those Saxon areas where its use had been most frequent before the migrations began.

Now this prevalence of stamped ornament provides the means of introducing a personal element into the study of Anglo-Saxon pottery in a way which is almost impossible in dealing with other classes of primitive ceramics in this country. We can in fact identify with some certainty the work of individual workshops and of individual potters



## SOME ANGLO-SAXON POTTERS

by observing on different pots the use of identical stamps or groups of stamps. In the simplest type of case the two or more pots concerned may be almost identical in other respects as well as in the use of the same stamps. No one will deny that the two vessels from North Luffenham, Rutland (FIG. 1, now the property of Mr V. B. Crowther-Beynon, F.S.A., to whom I am indebted for the photograph and for permission to publish it) are by the same hand. Their general likeness in form and fabric as well as similarities of detail—each has four neck lines above the single row of stamps, five lines below it, and seventeen small solid bosses—make any other conclusion impossible, quite apart from the use on each of the same stamp, a simple impressed ring, a quarter of an inch in diameter. Now these two pots were found by Mr Crowther-Beynon accompanying two inhumed bodies which had been buried in adjacent graves. It looks very much as though we were dealing in this case with a family burial, in which each successive interment was accompanied by an appropriate pot made by the same rather unimaginative family potter. A similar case is provided by the two vessels from Brighthampton (Oxon)<sup>2</sup> which were also found in adjacent graves (FIG. 2). Or we may find instances of the same design for a pot carried out in several different sizes: a good example is shown on FIG. 3. These three vessels come from the adjacent cemeteries of Lackford and West Stow in West Suffolk and are now in the Ashmolean Museum: they are identical in design and each shows the use of the same two stamps. It may be that here too we have simply the products of one housewife intended for family use, but the unusual regularity and precision with which the three sizes are executed give them a very professional look; they raise the possibility of something like a miniature commercialized industry, even perhaps of mass-production on a limited scale.<sup>3</sup>

These however are simple cases: on FIG. 4 are two vessels from the Girton cemetery, Cambridge, which illustrate the next stage. Both are

---

<sup>2</sup> See J. Y. Akerman, *Second Report of Researches . . . at Brighthampton, Oxon*, 1859, p. 3, graves 24 and 27, and the cut on p. 14. The bodies in this case were those of a man and woman, perhaps husband and wife. Akerman's account is reprinted from *Archaeologia*, xxxviii.

<sup>3</sup> In the Moyse's Hall Museum, Bury St. Edmunds, there is another vase apparently by this potter. It came from a local collection and its findspot is unrecorded. Since however two of the three stamps on it appear to be identical with those on the three vessels on FIG. 3, and its general scheme of decoration is closely similar to theirs, there need be little doubt that it came from Lackford or West Stow, which are both in the immediate neighbourhood of Bury St. Edmunds.



## ANTIQUITY

well made urns of considerable decorative pretensions, the larger of them being altogether exceptional both in size and elaboration of ornament. They are linked by general similarity of form and of some details of treatment, such as the 'hot cross bun' effect of the lower zone of bosses, but there are considerable differences in the two designs. Examination of the stamped ornament, however, makes it quite clear that they are the work of the same hand, for of the six different stamps which are used on the larger vessel, five reappear on the smaller. A good many pairs of this kind could be given, and there is no need to quote them in detail; examples exist in most of the cemeteries from which any considerable numbers of urns have been preserved, such as Girton and St. John's (Cambridge), Heworth and Sancton (Yorks.), or Caistor-by-Norwich (Norfolk).

Where a really long run of decorated vessels is preserved from a single site we may expect to find larger groups of urns from the same hand or the same workshop. At Sancton (Yorks.) at least four vessels with an unusually elaborate design which includes five stamps, all certainly from the same hand, were among the large number found. Two of these are preserved, one at Hull and one at the Ashmolean, while the other two were apparently too fragmentary to be kept.<sup>4</sup> The best group of this kind known to me at present is shown on FIG. 6. These five urns from Girton (Cambridge) now in various states of disrepair, were once of the same general form, with high conical neck and rather inconspicuous shoulder bosses. They all once exhibited the same general scheme of decoration: an upper zone of stamps on the neck, a zone of lightly drawn linear chevrons below it, then two or three further zones of stamps, and finally pendant empty triangles between the shoulder bosses, demarcated by lines which rise to intersect over the bosses. This rather unusual combination of decorative elements occurring on each raises a strong presumption that here again we are dealing with the work of one potter, and an examination of the stamps reveals the interesting fact that while the same ones are not used on all, they do interlock from pot to pot in a most convincing way as is shown in tabular form on page 393. Thus the first pot shows two stamps: on the next three these two stamps both appear along with the same third one: and on the last pot this third stamp is used with two fresh ones. Thus while no pot has less than two nor more than three different stamps, and no one stamp appears on all five pots, the five pots have only

---

<sup>4</sup> See T. Sheppard, *Hull Museum Publications*, 1909, 66 and 67, p. 53-4, and pls. III, 4 (reprinted from *Archaeologia*, 1880, XLV, pl. XXXIII) and IV, 9.



PLATE I



Height 5 ins.

FIG. 1. ANGLO-SAXON URNS FROM NORTH LUFFENHAM, RUTLAND (see p. 391)  
in possession of V. B. Crowther-Beynon, Esq.



Height 3½ ins.

Height 3 ins.

FIG. 2. ANGLO-SAXON URNS FROM BRIGHTAMPTON, OXON (see p. 391)  
Ashmolean Museum



Height 7 ins.

Height 8½ ins.

Height 5½ ins.

FIG. 3. ANGLO-SAXON URNS FROM LACKFORD AND WEST STOW, SUFFOLK (see p. 391)  
Ashmolean Museum



PLATE II



Height  $8\frac{1}{2}$  ins.



Height 13 ins.

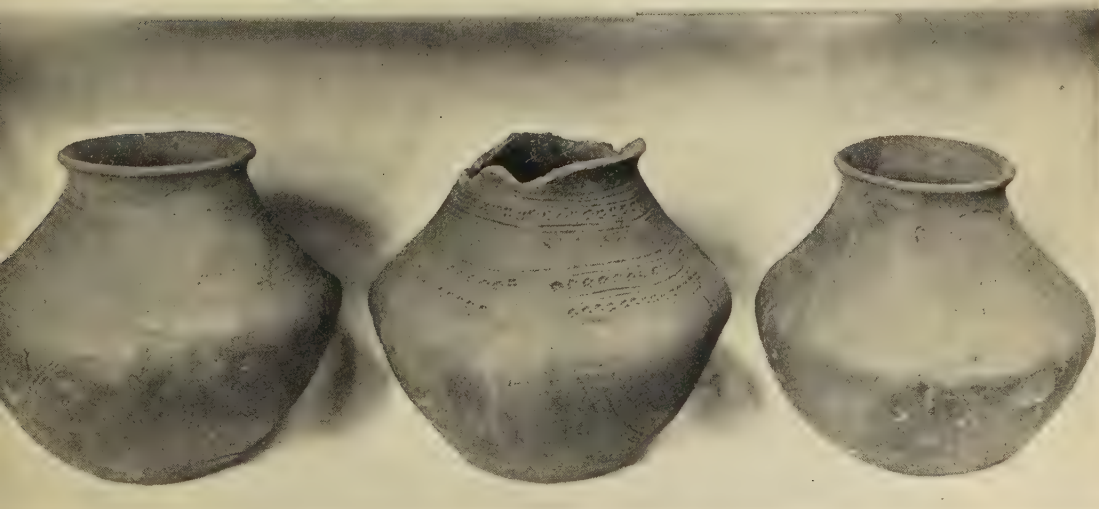
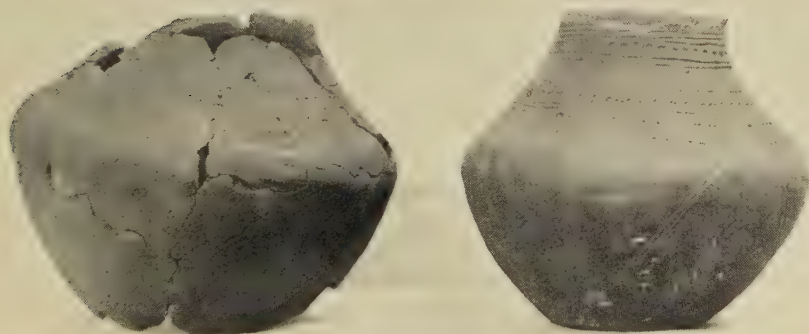
FIG. 4. ANGLO-SAXON URNS FROM GIRTON, CAMBRIDGE (see p. 391)  
*Cambridge Museum*



PLATE III



FIG. 5. ANGLO-SAXON POTS FROM EAST SHEFFORD, BERKSHIRE (see p. 393)  
*British Museum*



Average Height 8½ ins.  
FIG. 6. ANGLO-SAXON URNS FROM GIRTON, CAMBRIDGE (see p. 392)  
*Cambridge Museum*

PLATE IV



Height 8 ins.






FIG. 7. ANGLO-SAXON URN FROM GIRTON, CAMBRIDGE, NOW IN MUSEUM FÜR KUNST UND  
GEWERBE, HAMBURG (see p. 398)



## SOME ANGLO-SAXON POTTERS

five stamps between them, and every pot has at least one of its stamps in common with that on another of the group. The proof of their common origin could hardly be more convincing.<sup>5</sup>

It is sometimes possible to be reasonably sure that a single workshop is responsible for two or more pots even in cases where the stamps used are not quite identical. A good instance of this is provided by the

STAMPS	POTS.				
	1	2	3	4	5
	X	X	X	X	
	X	X	X	X	
		X	X	X	X
					X
					X

STAMPS USED ON THE URNS OF FIG. 6

two little vessels from East Shefford, Berks., shown on FIG. 5, and now in the British Museum. In fabric, form, and in the general decorative scheme of slashed bosses arranged in a continuous zigzag round the pot with vertical bosses, each bearing a single groove, depending from

<sup>5</sup> It is highly probable that the pot illustrated by Hollingworth and O'Reilly, *Anglo-Saxon Cemetery at Girton*, 1925, pl. VII, 1, also belongs to this group. It has the same horizontal zone of linear chevrons and one of its two stamps appears to be identical with the first illustrated on this page, but the more numerous shoulder bosses have driven out the pendant triangles and altered the lower part of the design.

## ANTIQUITY

them, the two vessels are so closely similar that they clearly come from the same workshop. But they show minor differences, additional necklines and bosses on the smaller vessel, and though the two stamps are of the same criss-cross or 'textile' class, they are not identical, one being a 2 by 2 square and the other a 6 by 1 elongated rectangle of a type much commoner on Frankish than on Anglo-Saxon fabrics. Other instances could be given in which a potter shows a tendency to use several different examples of the same general class of stamp. Thus a couple of pots from St. John's, Cambridge (FIG. 8, upper pair) are closely related in form, fabric, and general treatment (note the rippled shoulders and triangular grouping of the stamps), but the circular 'textile' stamps are not quite the same, one having a 4 by 4 criss-cross, the other a 3 by 5. It is possible that this may be a case of such a stamp being actually formed by holding a piece of coarse canvas or other textile over the end of a stick, and a change in the position of the stick would thus affect the pattern of the stamp. But while some such stamps were certainly made in this way, most criss-cross designs were produced by cutting the required number of grooves directly onto the flat end of a stick or bone, and several such implements, which can be very quickly made, would probably be found in the equipment of any potter who favoured this type of stamp. It is necessary however to be cautious at this point. It would clearly be absurd to claim as the work of one potter all vessels in which closely similar types of stamp were used: many types of stamp, notably the 'cross-in-circle', 'star-in-circle', and 'concentric-circles-with-raised-centre' types are very common and occur with innumerable variations in almost every cemetery. It is only where, as in the East Shefford and St. John's instances, the similarities of form, fabric and detail are otherwise close, that it is legitimate to claim pots with allied but not identical stamps as the products of one workshop; most large cemeteries show many borderline cases which it is generally wisest to ignore.

Still more precarious would it be to ascribe to one hand pots of similar style on which stamped ornament is lacking. Many of the unstamped pots of Anglian type decorated with lines, grooves, or bosses which are common in the Humbrenian area and East Anglia are strikingly similar to one another, but where the designs are simple this is only to be expected even if all the women in the community made their own pots. Where the designs are complex and individual, a greater probability may arise. Among the long and important series



## SOME ANGLO-SAXON POTTERS

of urns from the Sancton cemetery (E. Yorks.) there are three unstamped pots, two of which are now at Hull, and the third in the Ashmolean Museum at Oxford, which are almost certainly from one workshop.

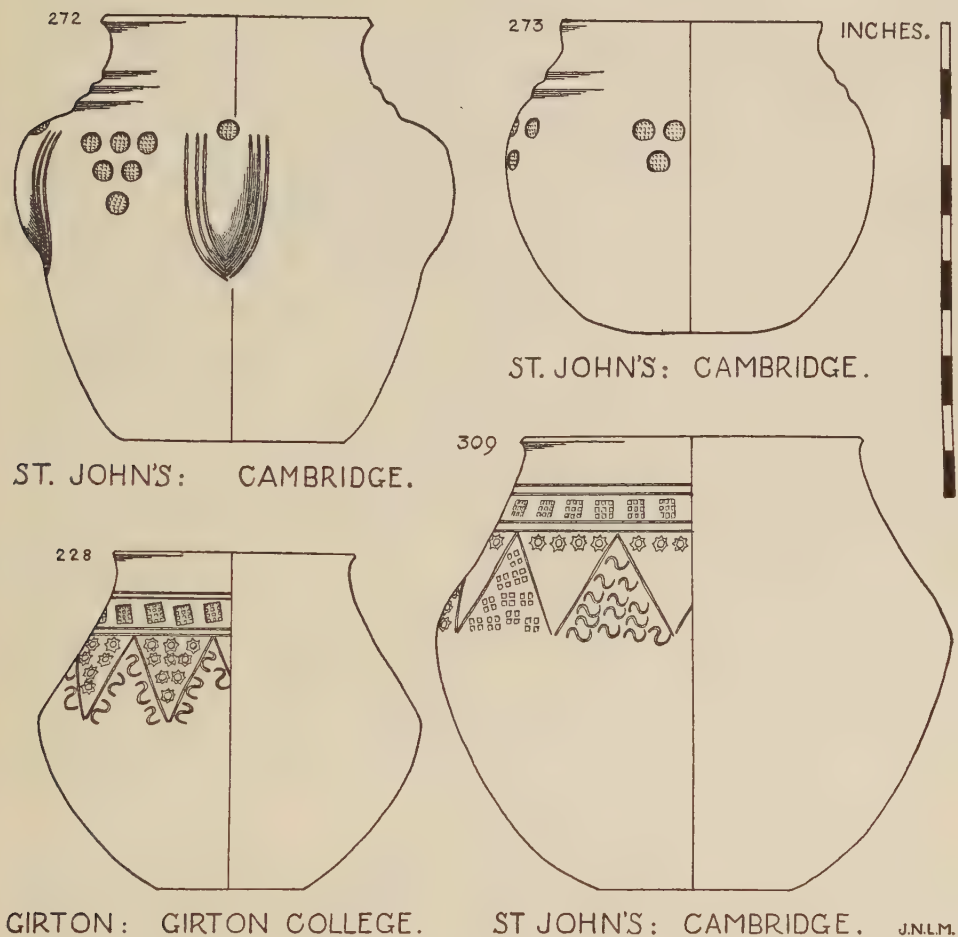


FIG. 8

Each is elaborately decorated with vertical slashed bosses and small round knobs arranged in the same scheme, and the panels between them are filled with freehand designs of swastikas and other scrawls and

## ANTIQUITY

patterns in light grooving which are clearly the work of one rather original hand.<sup>6</sup> But such instances are necessarily rare.

So far we have dealt only with cases in which two or more examples of the work of one potter occur in a single cemetery. On FIG. 9 in the lower row are three vessels obviously the product of one hand which come from sites several miles apart, and the fact that, by one of those happy tricks which almost compel one to credit the goddess of coincidence with a sense of humour, the two sites happen to be Girton and Newnham need not be allowed to obscure the interest of the phenomenon. It raises speculations of interest. Does it mean that there were itinerant peddlers of pottery in the sixth century? Did the women from the surrounding villages buy their hardware then, as now, in the Cambridge market? or is it a result of intermarriage between the two communities, the lady taking her pottery stamps and her taste in decoration with her to her new home? Her individual tricks are at least worth noting: the use of two stamps, both uncommon in design, the fondness for placing a single impression of one of them between the upper ends of her groups of zigzag lines, and the invariable grouping of these lines in threes. Another case of the same potter's work appearing on two sites, again in the Cambridge area, is shown on FIG. 8 (lower row). The larger of these two vessels comes from the St. John's cemetery. Its decoration comprising a horizontal zone of stamps, demarcated top and bottom by two light lines, and with zigzag panels of stamps below, is closely paralleled by that of the smaller urn from Girton. Two of the latter's three stamps, a large reversed s and a seven-point star rosette with raised centre, neither of them at all common, occur also on the St. John's vessel, while the third, a 2 by 3 criss-cross in a rectangle, employed only in the upper horizontal zone, is almost identical with the 2 by 2 criss-cross in a rectangle which occupies the same position on its fellow.

Most of the instances so far taken have been ones in which the pots ascribable to one maker have been of similar form. In the upper row of FIG. 9 there is a case of a Girton potter who evidently made vessels of a number of different types. On the left is a simple jar without bosses; in the middle a rather elaborate effort at a big bossed

---

<sup>6</sup> The Oxford example is published by Rolleston (*Archaeologia*, 1880, XLV, pl. XXXIII, 1). One of the Hull examples is illustrated by T. Sheppard, *Hull Museum Publications*, 1909, 66 and 67, pl. VIII, 18. The other, which is much smaller, has not been published; it has been wrongly restored from the neck upwards which serves to mask its likeness to the other two.



## SOME ANGLO-SAXON POTTERS

urn with a raised and slashed collar, and on the right a small accessory vessel with a pedestal foot. Of the two stamps employed one occurs on all three, and both on the two larger vessels. We can thus say with certainty that pots of these three types, being made by the same hand

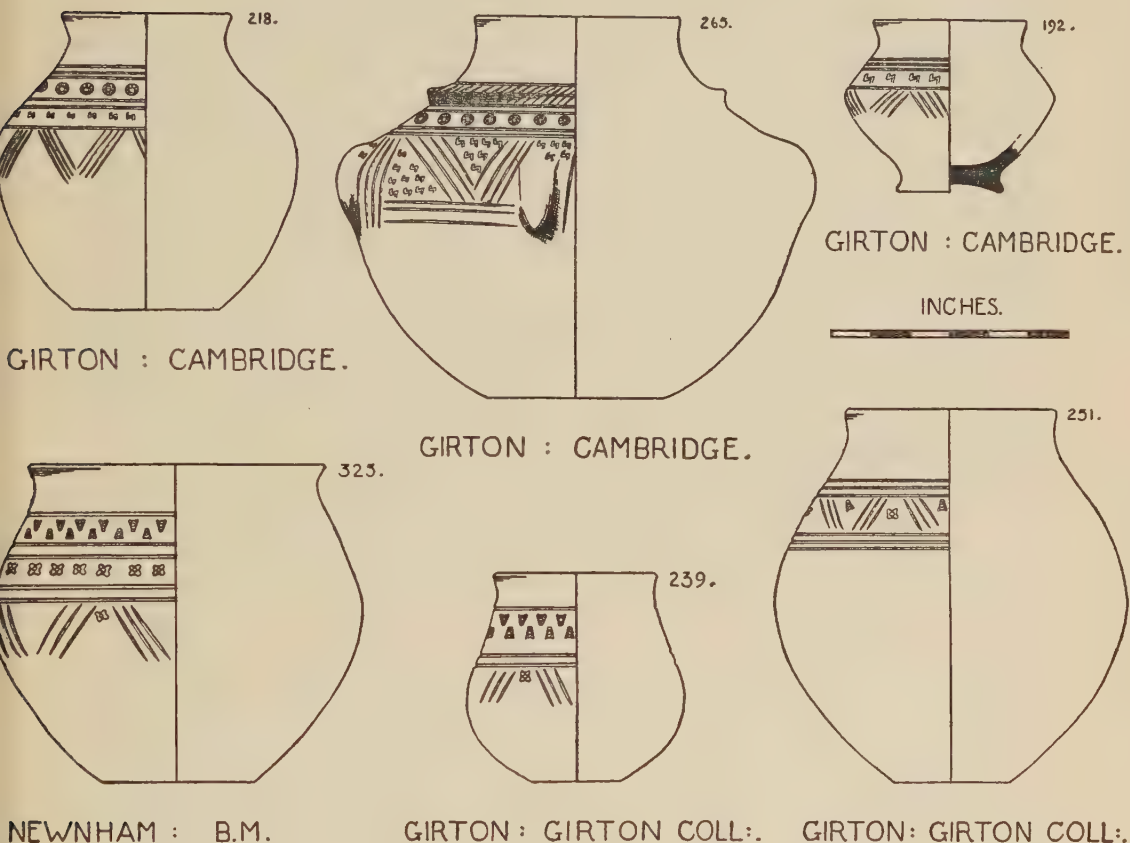


FIG. 9

with the same tools and the same individual tricks of technique—note the invariable grouping of the zigzag lines by this potter in fours—are roughly contemporary; a fact which it would be difficult, if not impossible, to prove in any other way, and one which illustrates the danger, into which some scholars have fallen, of attaching dates to the

## ANTIQUITY

varieties of pottery in this period on a rigid classification of forms.<sup>7</sup> Though no doubt certain forms were more fashionable at one date, and certain others at another, it would appear that form alone is a very insecure foundation for the chronology of Dark Age pottery: much more significance should be attached to the differences in decorative design and in the styles of ornamentation. With regard to this particular potter, for example, it may be suspected that the creation of the large bossed pot in the centre called for a rather exceptional effort on her part, for she has clearly made a somewhat unsuccessful attempt to use on a form unsuited to it the linear zigzag pattern which, to judge from the other two vessels, was her favourite decorative device. In so doing she has got out of step with the bosses and the whole scheme has gone awry. Now on typological grounds this large pot with its bosses and its retention of the primitive slashed collar would naturally be placed earlier than the jar on the left, but a study of the design suggests, as we have seen, that it should be treated rather as a late survival of the older type into an age when fashions had begun to change. We may even think of it, if we like, as a piece of deliberate archaism specially designed for an old-fashioned funeral in a family with conservative tastes.

To those who regard such speculations as merely fanciful, or who would prefer to think that the resemblance between these vessels is only another joke of coincidence, the following anecdote may help to bring the conviction that the principles underlying this byway of ceramic study do in fact work. In 1935 I sketched in the Museum für Kunst und Gewerbe in Hamburg two Saxon pots which were described as having been found in England. One of them seemed to me vaguely familiar and on my return home I found that it was almost the double of the jar on the left in the top row of FIG. 9 by the Girton potter whose work was discussed in the last paragraph. It is shown here on FIG. 7. Enquiries from the Hamburg Museum produced the information that it had been received in exchange from the Cambridge Museum, but that nothing was known of its findspot. When I was again in Hamburg in 1936 I told the authorities of the Museum that their urn almost certainly came from the Girton cemetery, which had produced three other vessels by the same potter, and asked permission to handle it. Looking inside I found, as I had hardly dared to hope, a label still adhering to its interior which had not been noticed before: it bore, in

---

<sup>7</sup> See, for example, A. Plettke, *Ursprung und Ausbreitung der Angeln und Sachsen*, 1920.



## SOME ANGLO-SAXON POTTERS

a faded but familiar hand, the words 'Girton College'. I think I had something of the feeling which the first astronomer must have had when he predicted an eclipse by calculation and it occurred.

These brief notes hardly do more than scrape the surface of a subject which has many levels and is worth clearing to bedrock. We shall never be able to treat Anglo-Saxon pottery in the same sort of way as Greek vases have been treated in recent years, to isolate the 'great masters' from the humbler folk and to write learnedly of schools and influences. But it is already becoming necessary to attach identity discs to the 'mistresses' of Girton, where, out of the eighty best preserved pots with stamped decoration no less than thirty-five can be plausibly ascribed to only eleven potters: and the same may soon be the case with other cemeteries. Unfortunately the material available from individual sites is too fragmentary to give a proper picture. It is not often realized that no Anglo-Saxon cremation cemetery of any size has ever been completely excavated in England; even our longest runs of urns are incomplete fragments of series the rest of which have either been destroyed or yet await recovery. If ever a midland cemetery could be found and completely cleared, in the same sort of way as the cemetery of Wester Wanna in north Germany has been cleared of its four thousand urns, not the least interesting result of such an enterprise would be the flood of light thrown by the pots themselves on the numbers, the relationships, the economic life and even the personalities of those who made them.

Acknowledgments are due to the authorities of the British Museum, the Ashmolean Museum, the Cambridge Museum of Archaeology and Ethnology, the Hamburg Museum für Kunst und Gewerbe, and to Mr V. B. Crowther-Beynon for permission to reproduce photographs of urns in their possession.

# The Church of St. Martin at Angers

Roman, Merovingian, and Carolingian Constructions

by GEORGE H. FORSYTH, JR.

ALTHOUGH situated in the heart of Angers a few squares behind the Cathedral, the disused church of St. Martin lies so completely hidden by encroaching modern structures that a view of its tower may only be had from one side street. Likewise an undeserved obscurity has descended upon its past history. Known before its dissolution in 1790 as one of the most venerable religious foundations of Angers, whose canons received their appointment from the king himself, the ancient College has left almost no records of its activities and vicissitudes. Nearly all its documents have perished at the hands of the revolutionists and the book-binders. Even archaeologists have left the church in relative neglect ; for in spite of the fact that it has been known and casually referred to since the days of de Caumont as an interesting example of Romanesque and pre-Romanesque architecture, it has hitherto been surveyed only once, by Gailhabaud in 1848. Even his handsome engravings (in *Monuments Anciens et Modernes*) quite omit the twelfth century choir and apse which so adequately mirror the power and growth of that fertile Anjou whose counts could step to the throne of England. The structure received no adequate attention until Canon Pinier acquired it in 1903, saved it from imminent ruin, and by excavations under the crossing revealed the importance of the site.

The building now consists of a nave, whose façade, roof, and north aisle have disappeared, a transept of great length with a tower at the crossing, and a large choir and apse, flanked by a chapel and a sacristy. The nave is of the later eleventh century. The crossing may be shown to belong to the tenth century. The tower above it, excepting its later vault, and the bulk of the transept were reconstructed by Count Fulk III Nerra, that ' pious bandit ', who elevated the church to collegiate rank, with thirteen canons, as indicated by a document of 1020. The remainder of the building eastward, with its imposing proportions and



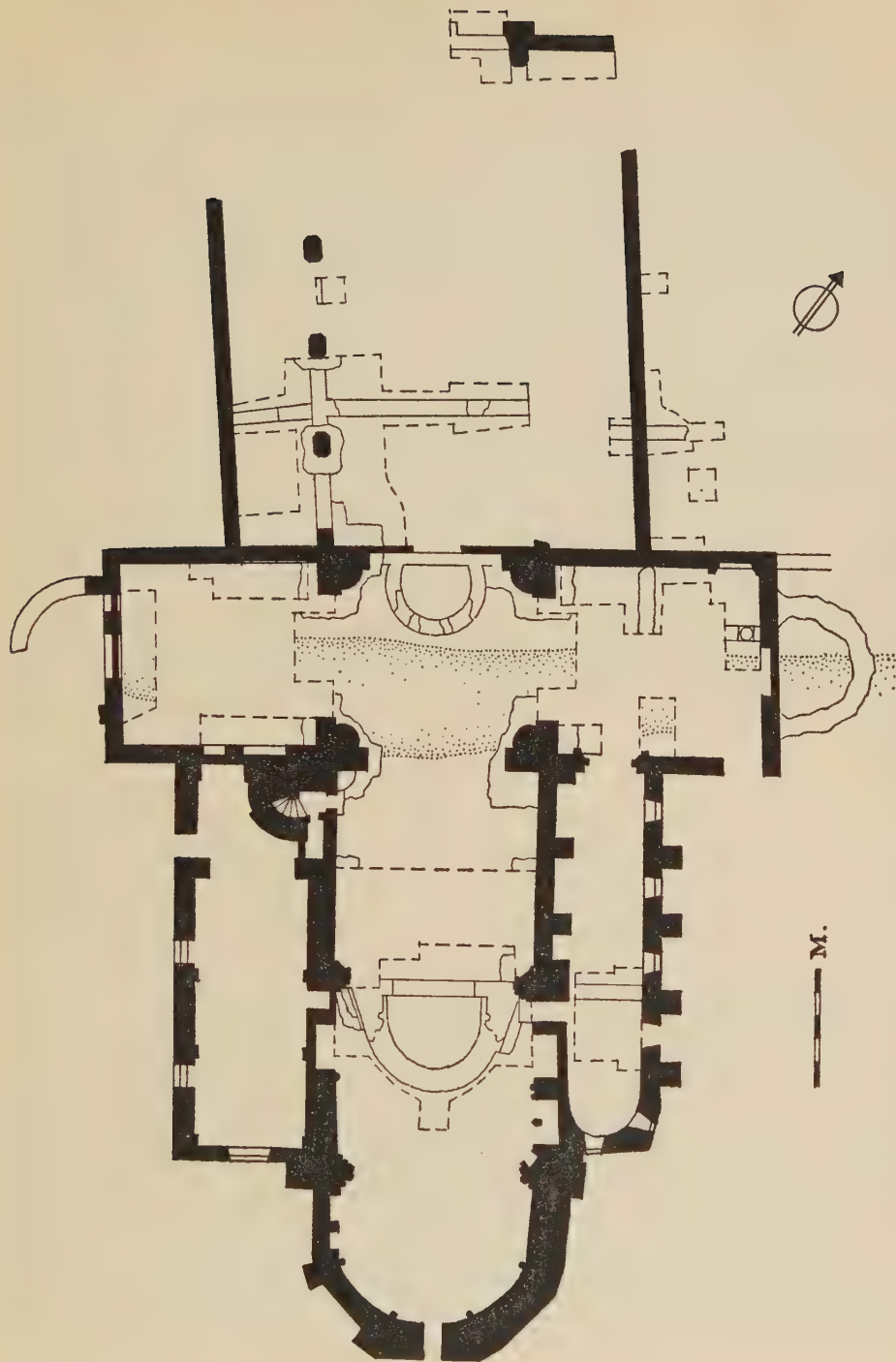


FIG. 1. GENERAL PLAN OF THE CHURCH OF ST. MARTIN AT ANGERS IN ITS PRESENT STATE, SHOWING EXCAVATIONS AND REMAINS OF EARLIER BUILDINGS

## ANTIQUITY

vaulted construction, was erected slowly and with clear signs of interruption from about 1160 to 1200 or somewhat later.

The preceding description covers those parts of St. Martin's which still survive to a considerable height above ground level and which are, consequently, the most recent ; for in the general history of the site the tenth century marks no archaic period of beginnings, but a relatively late stage in a series of buildings whose débris now lie submerged for the most part below ground level. It is this series of constructions and reconstructions between the first and the tenth centuries which lends the site its most exceptional interest and which forms the subject of the present article. There is not space to describe in detail our excavations, running in some cases to a depth of fifteen feet below the modern city, whereby the series has been uncovered and correlated. Suffice it to say that the familiar techniques of surveying, stratigraphical recording, dating by coins, pottery, etc., have here been employed. The results, for the periods under consideration, are summarized in the accompanying sketches.

The plan (FIG. 1) of the church in its present state is here somewhat simplified by the omission of certain excavations and walls which are of secondary importance. The boundaries of our trenches are indicated by broken lines.

### ROMAN REMAINS

The Roman road can only be traced for the length of the transept and somewhat north of it because of neighbouring modern structures which render impractical the attempt to carry excavations any distance beyond the limits of the church. In spite of this handicap it has been possible to make out the corner of a large building which apparently presented a colonnade and steps toward the road. Conjectural elements in the plan (FIG. 2) of the Roman road and of the earliest Roman building are here indicated by broken lines. The purpose of the structure, which was solidly built of Roman small stone (*opus isodomum*), is not evident, but it seems to be of a monumental character and its formal front and location not far from the probable site of the Roman forum do suggest that it was a building of some civic importance. This is further borne out by the extraordinary amount of rebuilding and extension to which the structure was subjected, seeming to indicate the rapid changes and congestion at the centre of a growing provincial capital. It is not possible here to describe these changes in detail but in general the first building was restored after a fire, the road was raised fifty centimetres,



## THE CHURCH OF ST. MARTIN AT ANGERS

an extension was later carried southward and eastward across the former roadway, a drainage canal was introduced, and ultimately an important series of walls was run out to the east. During this development the rise and decline of mason's procedure may be traced. In the earlier stages a superb technique of wall construction was developed, employing local quartzite boulders about ten centimetres across. These

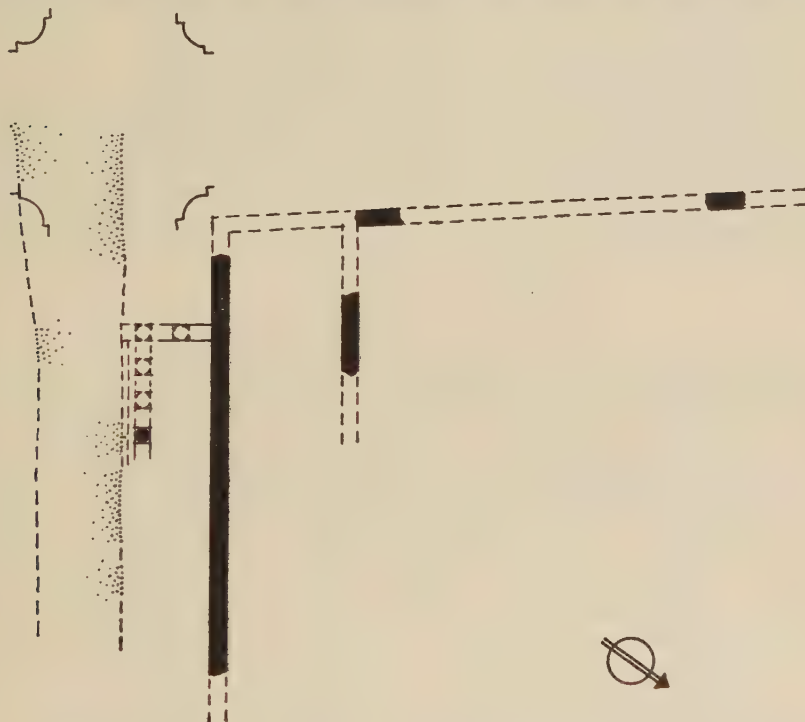


FIG. 2. REMAINS OF THE FIRST ROMAN ROAD AND THE EARLIEST ROMAN BUILDING WHICH HAVE BEEN UNCOVERED UNDER THE CHURCH OF ST. MARTIN AT ANGERS

Figs. 2-4 are drawn to the same scale as FIG. 1.

were cracked once to give a flush face, set in an abundance of fine mortar, their round faces outlined by rectangular trowel strokes in the mortar, and the whole knit firmly by occasional bonding courses of brick. Later a decline in technique occurred ; the quality of brick and mortar deteriorated and trowel marks disappeared ; but the basic conception of a wall as a mass of small local boulders, trimmed only on the face by a single hammer stroke and floating in a rich mortar bath—

## ANTIQUITY

essentially nothing but Roman concrete—continues right through the church constructions to the twelfth century and illustrates the extraordinary tenacity of Roman traditions in the Loire valley. The two roads are of similar boulders set in clay and dirt, their top surfaces worn smooth by traffic. As to the periods of all this complex, many more or less datable finds have come to light such as 'terra sigillata' ware, fragments of decorative fresco work, and a certain number of coins. The earliest coin found was of the reign of Augustus ; the latest, of Crispus, dates about 326. The former probably indicates the period of earliest Roman work on the site ; the latter marks one of the later stages, though not the last, and the entire area was brought down to a dead level of destruction and abandonment, which persistently recurs in our stratigraphy as mute evidence of the heavy tread of the barbarians ; perhaps the Franks and the Saxons by whom Angers was twice burned in 471.

### THE MEROVINGIAN PERIOD

At some time shortly after the general destruction the area became part of a large burial ground which covered this part of Angers. At first the burials were Pagan, enclosed by slates loosely set in the earth, but soon there appeared a series of large stone sarcophagi, lacking ornament but carefully oriented with feet toward the east, and herewith the long chapter of Christian occupation of the site began. We have found only three of these sarcophagi undisturbed. Of these three, two contained nothing whatever except skeletons but the third held in addition some simple jewellery and that 'rarissime', a Merovingian gold triens, which was struck at Orleans in the reign of Dagobert I in the early seventh century. This particular sarcophagus occurred at a high level, clearly indicating that many of the stone series were anterior to it.

The earliest architectural remains on the site related to this period are the fragments of a small rectangular building, which later became the nave and choir of the church shown in FIG. 3. This earliest building had no apse or projections of any kind, its only elaboration being a transverse division of some sort at the point occupied by an arcade in FIG. 3. That this simple box-like little structure was erected as a church seems at least most probable since the ground level continued to rise with sarcophagus burials all around it, but ceased to rise within it ; and a church, or perhaps a funerary chapel, appears the most likely structure to be erected for use at the centre of an actively employed graveyard.



## THE CHURCH OF ST. MARTIN AT ANGERS

By relation with the levels of the sarcophagus series, an early date is indicated for this building, possibly the first half of the sixth century.

A second stage in the development of the structure was marked by the addition of two annexes, which may perhaps be called 'porticus'.

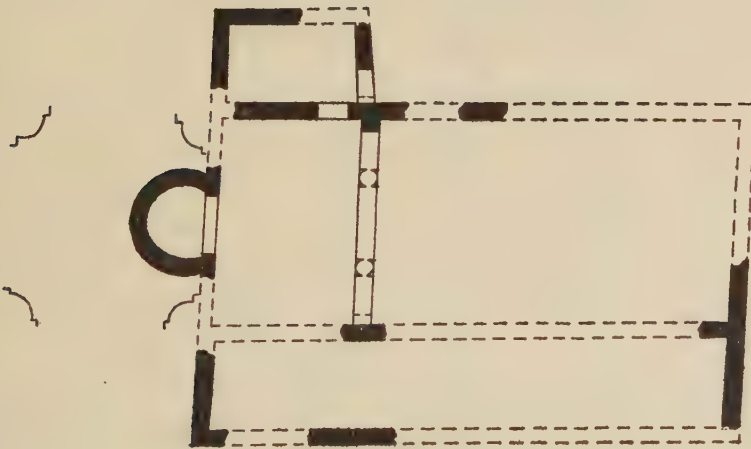


FIG. 3. PLAN SHOWING THE MEROVINGIAN REMAINS UNCOVERED BENEATH THE CHURCH OF ST. MARTIN AT ANGERS AND SECTION SHOWING AN ATTEMPTED RESTORATION BASED ON THESE REMAINS

On the north was a full length one ; on the south, a short one. No indication was found as to how the northern one communicated with the nave, nor as to the purpose of either. These alterations seem little later

## ANTIQUITY

than the original construction and may therefore be assigned to the middle of the sixth century.

The building was brought to its greatest extent by a third enlargement. This consisted in the addition of a horseshoe apse applied to the eastern wall and the reconstruction of the transverse feature dividing choir from nave. The exact form of this feature cannot be determined. At least it was not a solid wall with a small door; for what remains is a 'sleeper wall' and this must have carried transverse arcading of some sort, whether borne on piers or columns. There is no means of knowing if this reconstruction repeated a similar arcading in the first structure or if a wall of some sort divided the original choir and nave. There is a strong probability that the north 'porticus' was destroyed when the apse was built; but this is not certain, and therefore I have included it in FIG. 3 which attempts, by means of broken lines, to complete the plan from known parts thereof. Above this I have tried to indicate a probable section. For its outlines and proportions I have followed certain Spanish and Kentish churches which offer strong analogies in general scheme. A comparison of levels suggests that this final enlargement of the Merovingian church was about contemporary with the dated sarcophagus, namely in the early seventh century.

## THE CAROLINGIAN CHURCH

At a subsequent period, while the Merovingian Church was still in use, an extensive enlargement was begun. The existing nave and choir were thrown together and were to serve as nave of the new scheme, which was to include a long transept terminated by apses, a choir flanked by aisles, and an eastern apse. That nave aisles were also intended is clear from the stratigraphy, which shows that these builders dug trenches to examine the old north 'porticus' foundations, evidently with the intention of using them for the north aisle wall. But all these ambitious plans were arrested before the new walls had risen a metre above ground and at the same time the old church was destroyed to its foundations, its broken masonry scattered, and the whole catastrophe sealed over by the level mud stratum of a tranquil abandonment. There is no direct evidence as to the occasion of this destruction. However, it may reasonably be attributed to the Loire Vikings who desolated the entire valley in the middle of the ninth century and actually settled themselves for a year in Angers, where Charles the Bald and the Bretons laid formal siege to them in 872 with a great circumvallation. A church



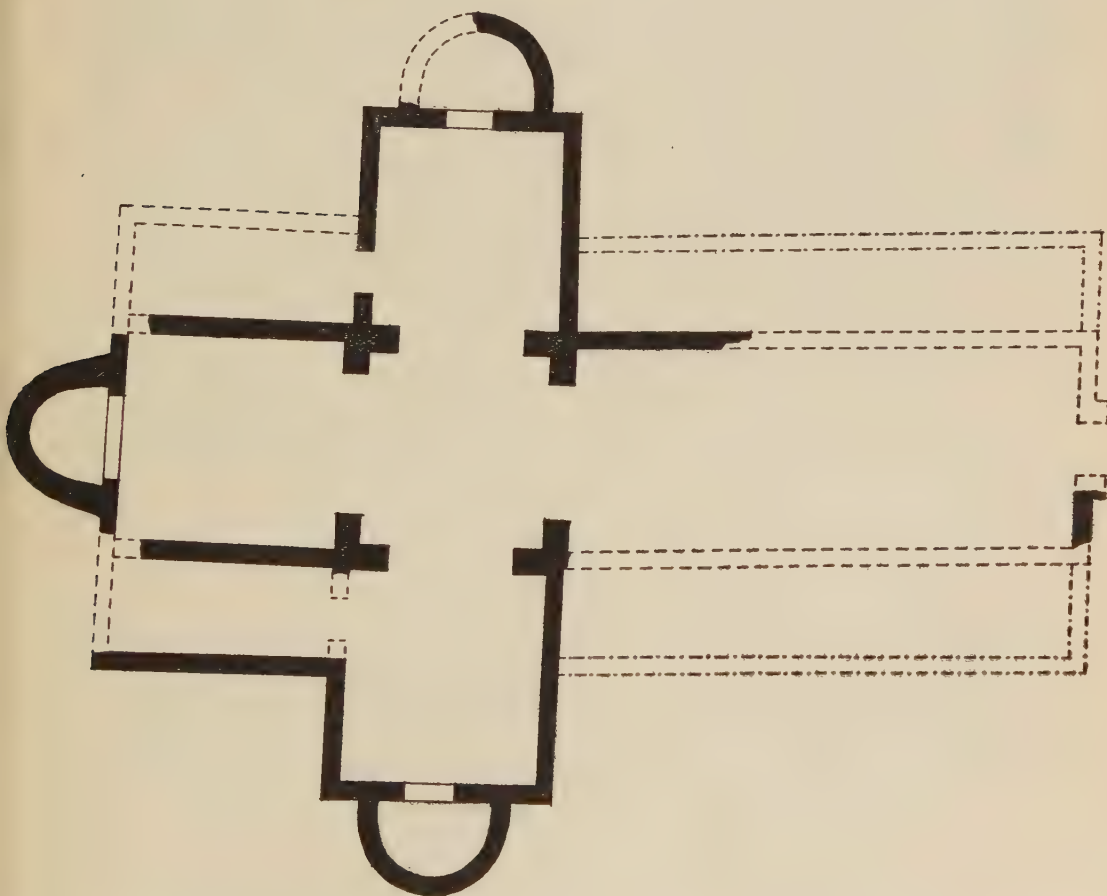


FIG. 4. PLAN SHOWING THE CAROLINGIAN REMAINS UNCOVERED BENEATH THE CHURCH OF ST. MARTIN AT ANGERS AND SECTION SHOWING AN ATTEMPTED RESTORATION BASED ON THESE REMAINS

## ANTIQUITY

near the city walls could hardly survive such events. If this conjecture be true, then the church enlargement which had been under way a short time before the destruction would fall within the Carolingian period.

After a considerable lapse of time a reconstruction of the building was undertaken, following out exactly the enlarged scheme which had previously been laid down. The precise period of this cannot be determined, but somewhat after the Viking invasions there followed an era of relative peace and prosperity in Anjou under Count Fulk II, 'the Good', who ruled from 942 to 960, and who was a canon of St. Martin's at Tours and an ardent devotee of the Saint; and the revival of St. Martin's at Angers may reasonably be assigned to the period of this prince. In any case work was resumed sometime during the tenth century; for a document of 1020 describes a subsequent restoration of the building. In FIG. 4 I have indicated the main outlines of this structure, which is still entitled to be called 'Carolingian'. The broken lines in the plan indicate conjectural elements. The nave aisles are differently noted in order to show that they were never built in this period; in fact they were not completed until the later eleventh century. Yet they formed part of the original Carolingian scheme and probably it was always intended to build them. In the section many of the parts still survive as shown, or are indicated by later alterations. The most doubtful matter is the termination of the tower. I have indicated it with a simple pyramidal roof which was the form used in later reconstructions of the church and which occurs elsewhere in the region at this period. The building which thus reveals itself is without the aspiring and ungainly force of the Germanic character which finds expression in the great Rhenish churches of the Carolingian period, and it shows none of the gropings after East Christian decorative and structural forms which can be seen in the contemporary architecture of North Italy and elsewhere. In the place of either of these qualities St. Martin's, in its Carolingian phase, beautifully embodies the third element of medieval architecture. Just as its walls are actually founded on Roman walls, so equally does its design rest upon the classic traditions of power in repose and of elegantly simple form which survived to a remarkable degree in the Loire region, not only in architecture, but also in manuscript illumination, and in poetic composition.



# Dendrochronology

by F. MARTIN BROWN

**D**URING the first years of this century an astronomer, Dr A. E. Douglass, started a series of examinations of the annual increment in trees just south of Flagstaff, Arizona, to see if the cyclical nature of sun-spot appearances was reflected in tree growth, through their influence on climate. He found that there was a rather high correlation between tree growth and sun-spots in the living trees he examined. In order to extend his studies into the past—beyond the 500 years recorded by living trees—he collected material taken from beams in the old Spanish Missions that dot the southwestern United States. He had found that it was possible to identify certain characteristic sequences of tree-ring widths with certain years, and thus project into the past his chart of tree growth from timbers cut at an unknown past date. In doing so he discovered a technique that has founded a new branch of science—dendrochronology.

From the old Missions he turned his attention to the still older Pueblo villages that have been occupied to the present time. It was when he began working with these aboriginal structures that the archaeologists excavating in the region began to realize the possibilities of his methods for dating the erection of ancient buildings. In 1923, under the National Geographic Society, an expedition was put into the field to recover from many of the ruined sites in New Mexico, Arizona and Colorado timbers that might date them. At the time of this expedition his chart of information extended back only to the 13th century or so. Many archaeologists felt rather doubtful that these long-abandoned sites could supply records so recent. The beams which he had from archaeological sites formed a sequence of about 580 years that did not overlap, and thus did not connect with the chronology extending back from modern times.

The story of Dr Douglass' search for beams that would close the gap between the Flagstaff sequence, which extended from modern times to 1280, and the several floating sequences that had been derived from beams taken out of early sites is as exciting as a mystery story. A beam taken from the ruin at Showlow, in 1929, yielded a ring sequence

## ANTIQUITY

that connected a long floating series of prehistoric material with the Flagstaff series, so that the Showlow beam and the floating sequence could be dated in Christian time. This long, dated sequence was then named the Western Pueblo Chronology.

There still remained, however, a large, charred beam from Johnson Canyon, which did not overlap any of those collected on the nearby Mesa Verde, and another early beam, BE-33, showing eighty-one rings, which contained near its periphery a striking sequence of rings that could not be found in any other of the floating chronologies. Mr Morris collected a large roof beam from a site which he described as early Pueblo in Mummy Cave, near Canyon de Chelly. This contained the same peculiar signature as BE-33, and the floating sequence containing it was thereafter called the EPD—Early Pueblo Dating—chronology. Since the EPD sequence, built up to cover a period of about three hundred years, and the JCD—Johnson Canyon Dating—series, extending over a similar period of time, were not linked together and did not tie in with the dated sequences, the search was stimulated to find beams that would close the gaps. In 1931 Dr Hawley dated a beam from Chetro Keti in Chaco Canyon. Its inner rings extended the dated sequence backward to A.D. 643. This large beam closed the gap between the Western Pueblo Chronology and the JCD sequence, and the Johnson Canyon material was identified as evidence of construction in that region in the late 7th century.

The search continued, and again Mr Morris' timbers from Basket-Maker and early Pueblo sites were carefully scrutinized. It was not until 1933 that one of these beams was found with the EPD signature near its centre. The outer rings distinctly showed ring sequences that tied together the EPD and the JCD series, and the EPD signature of eight rings was shown to be A.D. 423 to 431 (FIG. 1, p. 424). Since then the search has been continued and as a result the earliest sequence to receive a date begins in A.D. 11.

At present there are two major chronologies based upon the study of tree rings. The original one, begun by Dr Douglass and extended by him and his students, is usually known as the Flagstaff or Western Pueblo Chronology and extends back to the beginning of the 1st century. Through the studies of Dr Emil Haury, this has been shown to be workable in southern Arizona as well as in the entire San Juan drainage where it was developed. As yet, attempts to adjust it to the northern drainage of the Colorado river have been unsuccessful. Trees brought out by the author from that region do not have the same sequence of



## DENDROCHRONOLOGY

growth-characteristics as those from the more southern area. The ruins discovered on the northern tributaries of the Colorado river will probably not be dated until an independent chronology is arrived at for that region.



The second dating scale is being developed by Mr W. S. Stallings, jr., at the Laboratory for Anthropology in Santa Fe, New Mexico. It applies to the Rio Grande drainage system and is distinct from the Western Pueblo Chronology in many respects. Mr Stallings has been able to extend his chart well into the closing centuries of the first millennium A.D.

## ANTIQUITY

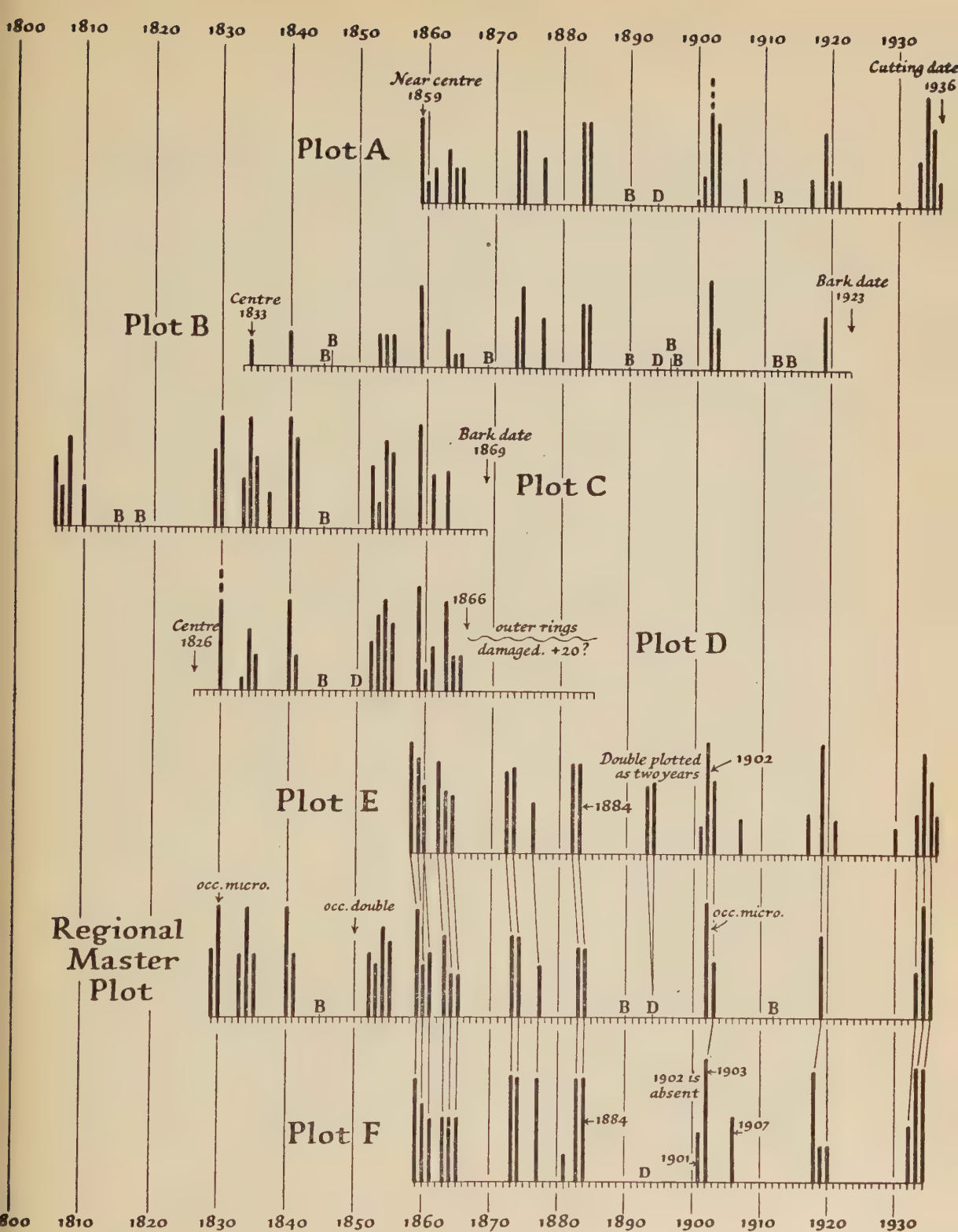
The task of developing a chronology is arduous and long. Its inception is the gathering of a great many specimens from living trees and the noting of the sequences of tree ring widths. These are plotted, for each specimen collected, on a piece of cross-section paper, the width of a ring being expressed rather in relation to the width of contiguous ones than by actual measurement. Thus the local conditions making for general rapid or slow growth are eliminated. When a period of years is represented from twenty or thirty specimens, these records are synthesized into a master-plot which represents the average conditions for that particular period of years. This is illustrated a little farther on.

In devising these charts, it has been found by experience that drought years furnish the important keys and thus it is that the leanness of the rings is recorded rather than their stoutness. So a ring representing a year of extremely little growth is marked on the chart by a long line. Occasional rings are found to be lacking entirely or partially in one or two specimens, while in others these rings are of microscopic narrowness. Such rings cause considerable trouble and are recognized only when many specimens covering a period of years have been examined. Occasionally a growing season has been such that a narrow band of compact cells is formed within the year's increment and a single year-ring gives the appearance of two rings. Such occurrences must be studied and carefully noted as 'doubles'. Otherwise, a year might be falsely interpolated into the chart. FIGURE 2 (p. 424) shows these two types of anomalous growth which in the hands of a tyro may lead to deceptive results.

Let us suppose that we are starting to develop a dendrochronology for a region. A great many increment borings have been gathered and a number of cross-section cuts have been taken from timbers used in the construction of cabins and from some old mine buildings. From an analysis of the increment borings we can get an idea of the variation in the width of tree rings for a period extending from the time the borings were taken back into the past.

On the accompanying page of drawings, plot A represents the data derived from what seems to be one of the sensitive trees. From it we can see that there have been alternating periods of drought and moisture. Between 1873 and 1884 there is an interesting arrangement of drought years, that may serve for identification. Also the ring representing the growth for 1902 is visible only under a hand lens and may be called a microscopic ring. It is represented on the plot by a long line continued





## ANTIQUITY

with dashes. 1890 and 1912 were years during which excessive growth was put on by the tree. They are marked B. In 1894 the growing season was interrupted, probably by a dry hot period which caused the formation of a double ring. It is marked D.

Let us suppose that our next specimen, B, came from a rather recently constructed cabin. The plot shows the arrangement of narrow and broad rings but, as yet, no date can be assigned to any of them. Comparing this plot with A, we find that the signature of 1873-84 is at once recognizable, near the middle of the plot. When these signatures on A and B are placed in conjunction, the drought years of B coincide throughout with those of A, and the double of 1894 falls in its proper place. Plot B, however, does not show all the dry years that are found on plot A, and, in addition, it does show more years of better than average growth. This means that the tree from which sample B was derived was growing in a location more favourable for its development than was tree A. Plot B might be considered somewhat complacent, although it is still good enough to be used for deriving a date. From the plot we see that the tree started to grow in 1833 and was cut in 1923. It has extended our chronology backward about twenty-five years.

Plots C and D, let us suppose, represent sections of logs taken from an old mining camp. On specimen C the bark is preserved, but on specimen D the outer part of the log is not preserved and there is no exact way to get a cutting date. Comparing C with D, we find that they fit rather well. There are, near the outside of each of them, four successive years of drought, then three years of normal rainfall, followed by three more dry years alternating with periods of moderate precipitation. If we place the four drought years in conjunction, there is fair agreement between C and D. Plot C when placed against plot B does not fit very well but it seems quite probable that the group of four drought years represents the period 1852-5. When C and D are taken together, and are studied with A and B taken together, it is apparent that the seven years, 1859 through 1865, which have a distinct pattern on A, represent the outermost group of drought years on plot D; and so the first of this last pattern is assumed to be 1859. However, a further search for specimens covering the overlap is imperative, before this assumption can be taken to be true. Such a search must be made for a specimen that includes the 1873-84 signature and what appears to be a distinct pattern from 1830 to 1841, clearly visible on C and indicated on D.

Below plot D, on the page of illustrations, is a master plot for the

## DENDROCHRONOLOGY

region, derived from the four samples given. On it the consistent years of drought are carefully plotted. Those rings that appear to be microscopic on it are marked 'occ. micro.'. The rings that are consistently broad are marked on the master plot with a B, those that are consistently double with a D, and those that occasionally are double 'occ. double '. As more specimens are studied and the position of drought years verified, the master plot will be more accurate and will extend further into the past.

The two troublesome types of rings, double and absent, and the method used for their detection are represented on plots E and F. In plot E we have an example of a double that, inadvertently, was plotted as two separate years. If we compare plot E with the master plot, we shall see that the 1873-84 signature and the drought years, 1902, '19, '33, '34, '35, can be made to coincide with those of the master plot only when plot E is decreased by one year between 1885 and 1900. On E during this period there appears a pair of drought years, one of which coincides with the constant double of 1894. This immediately explains the extra year, and re-examination of specimen E will reveal that what have been considered two annual rings at this point are the two parts of a double. The false ring is irregular and fuzzy in definition (see FIG. 2, p. 424).

Plot F shows what happens when a plot is made of a specimen in which for one year no visible growth occurred. When the 1873-84 signature is placed in conjunction on the master plot and plot F, the group of drought years previous to the signature falls into line. There is good coincidence through the early years of the 20th century, but the dry year, 1919, has shifted into the position 1918 on F and the three dry years, 1933-5, have also shifted and are one year out of place. Thus there must be an error in our plot somewhere between 1884 and 1919. Such an occurrence might be accounted for by a year missing from plot F. An examination of the master plot and specimens A and E indicates that in all probability in specimen F the growth ring for 1902 is absent, since its interpolation will properly place the year 1907 and those years following it. Thus it is possible, when a sufficient series of specimens is studied, to recognize rings that have been omitted and double rings that have been plotted as two years.

The above imaginary series of specimens has been made to contain many of the interesting features of tree rings in a very brief period of years, for the purpose of showing the techniques involved.

The influence of microclimatic conditions upon the trees is clearly



## ANTIQUITY

recorded in their rings of growth. By experience and definite experimentation certain trees have been found to be complacent in regard to weather conditions, and to show very little difference in increment between dry years and wet years. Such is the condition that is met with in trees that are growing in valley bottoms and in places where their root systems may extend into a constant supply of underground water. Trees that yield the best material for tree ring work are regularly shaped, mature trees growing in the open on thin soil, rather high on the sides of steep slopes. Such individual trees are wholly dependent for their growth upon rainfall, not upon an underground source of water. Fortunately, conditions in the American Southwest provide that most of the trees grow on such slopes or in very porous soil and, therefore, yield rather fine records of past climate.

Mr MacGregor made an interesting study of the rate of growth of the coniferous trees in the volcanic ash near Flagstaff, Arizona. He discovered that the trees growing in clay, the result of the decay of an ancient ash-fall, showed great variation in the width of the rings. Trees growing in those parts of the countryside most deeply covered by a more recent ash-fall showed increments four times as great as those growing on soil bare of ash. However, the trees growing in the ash-free region yielded far more easily read records of the weather, and showed great sensitivity to slight fluctuations in the rainfall. The rapidly growing trees in the deep ash lost many of the fine distinctions readily discernible in the year-to-year record of the more slowly growing trees.

Before embarking on the task of dating a ruin, it is necessary for the dendrochronologist to be conversant with the appearances of complacent and sensitive records from the region surrounding the site to be dated. The procedure in dating a ruin is not too difficult once a good working knowledge of tree rings has been gained, but it is rather tedious.

Specimens of all the beams available from the site are collected. Each one is carefully identified as to the precise location from which it came in the structure. These specimens may be complete cross-sections or one-inch increment borings such as those taken in living trees. In the laboratory these are carefully cut along a radial line with a very sharp knife, preferably a razor blade. It is necessary to take great care not to crush any of the cell structure of the wood. The specimen is then examined by the aid of a hand lens, and the relative widths of the rings are plotted on cross-section paper in their proper sequence, the outermost rings being represented at the right hand side of the plot. This specimen plot is then slid along the master plot until a satisfactory

## DENDROCHRONOLOGY

match is made between the growth sequences shown in the two charts. When such a point is reached, it is possible to assign a definite date to the outermost line of growth in the specimen. If the specimen has not been damaged and the bark is still present, that assigned date is termed the bark date and is considered the cutting date. When the outer layers have been damaged, such dates are followed by  $+x$  and may be used only if that is borne in mind.

When all the timber specimens from a single room have been dated, the cutting date of the majority of them is taken to be the year in which the room was constructed. Occasionally in such a series of specimens a timber is found bearing a much earlier cutting date, indicating that it had been removed from an earlier structure and re-used. Many of the earliest dates in the ruins of the Southwest have been derived from such re-used timbers. More frequently a specimen or two will yield a much later date than the assumed date of construction. This is taken to indicate that for some reason or other it was necessary to replace the timber. Such replacement timbers give us an indication of the length of time the structure was occupied before being deserted. As an example of construction history let us take site NA 538 of the Museum of Northern Arizona, a single-room pit-house. Eleven timbers dated by Dr Douglass and Mr MacGregor yielded the following cutting dates: 1156 $+x$ , 1182, 1183 four beams, 1184 two beams, 1192 two beams, 1260. Mr MacGregor estimates the building date as 1185 with replacements at 1193 and 1261.

In a large structure it is possible, by dating all the rooms, to follow the growth of the building throughout the period during which the site was occupied. The accompanying diagram (see page 419) is copied from the plan of Spruce Tree House in Mesa Verde National Park, published by Fewkes as plate I, Bulletin 41, Bureau of American Ethnology, 1909. The numbers are the dates assigned to the construction of the various rooms by Mr Harry T. Getty, in the first report of his study of this ruin (*The Tree Ring Bulletin*, 1935, volume 1, page 29). The lettered circular structures are ceremonial rooms called kivas. The two, unlettered, circular rooms may have been towers such as are found in Cliff Palace. There is no indication that they were ceremonial rooms.

Of the seventy-one secular rooms six in the northern part of the settlement were three stories high, twenty-nine were two stories high and thirty-six were but one story. In Fewkes' report he considered those rooms grouped around kiva A to be the first constructed. As

## ANTIQUITY

yet the only date assigned in this part of the site is to the second story of room number two, which was built in 1275 and is one of the most recent in the entire settlement, according to Getty's dating. Whether Mr Getty will be able to bear out Dr Fewkes' idea depends upon further study of timbers from that region of Spruce Tree House. So far, the earliest rooms dated lie just east of kiva D. There, construction seems to have extended to the south until the large block of central rooms was completed. From that point, construction seems to have extended to the peripheral rooms of the ruin.

Studies of the masonry show that the rooms directly east and south of kiva E are the best constructed in the entire cave. These were built between 1244 and 1254. From the few rooms that have been dated, it seems that there was a gap in construction of twenty years between 1254 and 1274. When all the rooms have been studied, it is expected that this period will prove to be one during which second and third story construction was being actively pursued.

Since the village probably represents eight groups of living-rooms, each group associated with a ceremonial chamber, dates derived from these circular structures will be of great assistance in determining the expansion of the settlement and the periods during which each unit group was erected. Thus far no kivas have been dated. When similar studies have been carried out on a large number of the South-western ruins, it is to be expected that we shall have a much better idea of community organization and of the stages in the development of a cliff-dwelling.

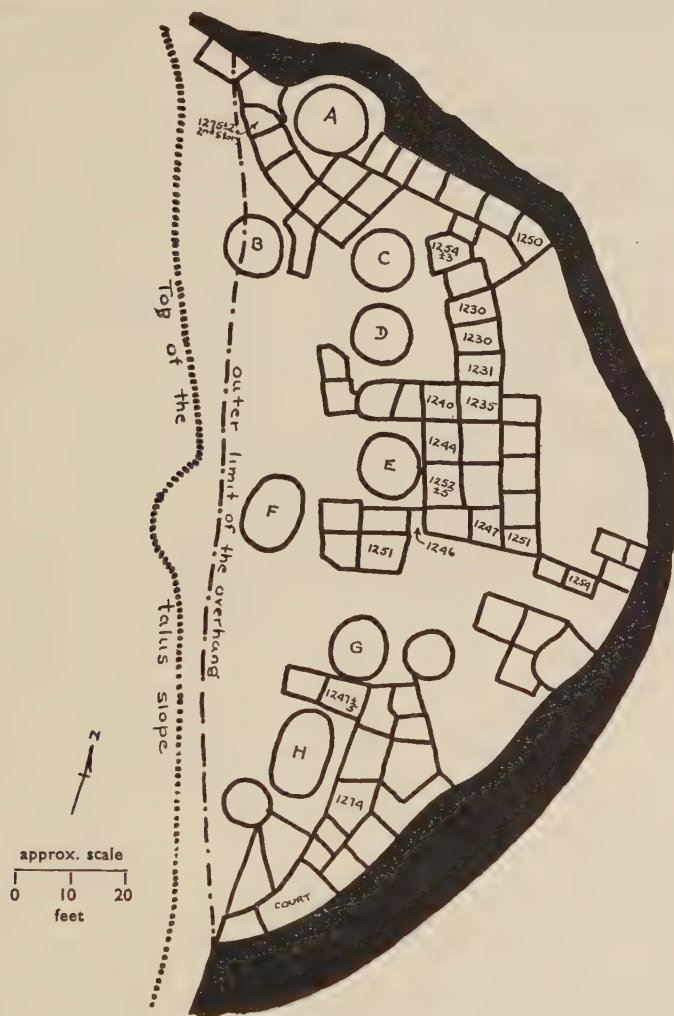
It may be of interest to note at this point that the earliest cutting date found in the timbers of Pueblo Bonito was read by Miss Hawley from a timber taken out of the third story of that building. Obviously that old beam had come from a room abandoned before the present structure was built.

Further use for tree rings has been found in dating pottery types, through the rooms in which they are found ; and information gained from this has, in turn, been used in the study of refuse heaps. Recently Dr Antevs and Dr Senter have applied information from dated pottery types to a study of deposition and erosion in Chaco Canyon near Pueblo Bonito. In 1936 the University of New Mexico drove a trench to the depth of eighteen feet in the Canyon bottom. The walls of this trench were carefully studied by Dr Antevs for erosion surfaces and by Dr Senter for shards. Above the sterile sand at the bottom



## DENDROCHRONOLOGY

of the trench and separating it from a rather thick deposit containing Escavada black-on-white pottery, there was an erosion surface. Since we know from material recovered from dated rooms that Escavada



PLAN OF SPRUCE TREE HOUSE, MESA VERDE, NATIONAL PARK (see pp. 417-18)

black-on-white was manufactured at this site between A.D. 850 and 950, the erosion surface was assumed to have been formed previous to 950. During the years 900 to 907 climatic conditions, according to

## ANTIQUITY

the tree rings, were such in the Chaco that an erosion surface might form ; and so the period 900-907 is assigned to erosion surface number 1.

Separating the Escavada horizon from one containing Gallup and Chaco black-on-white was another erosion surface. These two wares were manufactured from about A.D. 950 to 1130, and the period within that span of years most likely to form an erosion surface is 1035 to 1041 ; so those years are assigned to erosion surface number 2. As we accumulate more definite information about the time during which certain types of pottery were in vogue, the geologists will have a more accurate scale for dating the erosion changes that have taken place in the topography of the Southwest.

It might be of interest to give at this point the actual dates for the manufacture of some of the other wares. The earliest kind found in the Southwest was made by the people of the Basket-Maker III horizon. Timbers from many of the caves excavated by Mr Earl Morris and found to contain early pottery give us a range of from A.D. 600 to 750 for the manufacture of this early ware. This was followed by a black-on-white pottery. At present far too many types of this ware are recognized. Of the more important, those under the general classification of Chaco black-on-white were manufactured from about 850 to 1150, the Mesa Verde from 1050 to 1275 and the Kayenta from 1100 to 1275. These three were developed in the San Juan drainage basin and might well be given a generic term—San Juan black-on-white. They vary primarily in the techniques used to apply the black decoration on the white slip. In the Rio Grande Valley black-on-white potteries have been found associated with timbers dating from 1106 to 1594. The so-called Santa Fe and Gallisteo black-on-whites apparently were the earliest types developed in the region. At the ruin Unshagi, which has yielded dates 1572-94, Jemez black-on-white is found associated with a late type of glazed ware.

Polychrome wares have been manufactured since about A.D. 1100. From the data at hand it would seem possible that two neighbouring villages might well be placed culturally far apart on the basis of their pottery and yet actually be contemporaneous. We shall not know the full history of the development of pottery in the Southwest for many years to come. It is well that, in sites being excavated today, large sectors of each are being left untouched for the archaeologist of the future, whose knowledge of the Southwest will be less incomplete.

At Pinedale, Arizona, excavations showed two distinct types of polychrome pottery. The uppermost is called Pinedale and overlays an

## DENDROCHRONOLOGY

equally well-developed type called St. John polychrome. After timber specimens were dated from these two pottery horizons, it was shown that they represented two periods of occupation separated by a lapse of about sixty years. The earliest horizon, from the rooms of which dates ranging from 1132 to 1231 were derived, contains St. John polychrome. The later occupation, during which Pinedale polychrome was manufactured, lasted from 1293 to 1330. Since these ranges of dates are represented by a great many pieces of wood and therefore approximately limit the periods of occupation, we can assume that the early people evacuated the site sometime during the third decade of the 13th century. Whether they moved back during the last years of that century or whether another group moved in cannot be decided at present.

However, the beginning date for the rehabilitation, 1293, is an interesting one. To appreciate it one must know that the trees from the San Juan drainage, some distance north, bear the evidence of a prolonged drought which began in 1276 and which was not relieved until 1299. This period of greatly reduced rainfall in an already semi-arid region readily explains the sudden desertion of such admirably situated sites as are found on Mesa Verde and in Tsegi Canyon.

In these two regions the people seem to have been at a peak of development when the drought set in. Their corn fields, parched and unproductive, could no longer support more than the smallest fraction of the population. We do not know exactly where these people wandered. There is, however, some indication, drawn from changes in the designs on pottery, that they moved to the south and to the east. Rehabilitation of abandoned sites also offers a few clues. For instance in Canyon de Chelly, Sliding Ruin, which had been abandoned in the closing years of the 10th century, shows evidence of re-occupation with new construction in 1284; and in the Rio Grande Valley a number of sites have been found, but not dated, from which pottery has been recovered that shows a direct influence from the Mesa Verde region. Terminal dates in the Mesa Verde buildings are very close to 1275 and, as tree-ring work progresses in this region, it is quite probable that little or no evidence of new structures will be found after that date. That the Tsegi Canyon was deserted at a little later time is evidenced by the terminal date of 1286 for the two largest and best known ruins, Keetseel and Betatakin. It might well be, therefore, that the second occupation of Pinedale was by wanderers driven from their more northern homes by the great drought.



## ANTIQUITY

Thus far we have found that the San Juan region was occupied from about the middle of the 4th century through the closing years of the 13th; that the area drained by the Little Colorado has been continually occupied by sedentary people since the close of the 7th century. It is in this region that some of the longest-occupied towns of North America are situated. For instance, Oraibi, one of the Hopi towns of today, has yielded timbers that were cut in 1370. The dated ruins of Mogollon Mesa and of southern Arizona give us a range of dates from 896 to 1385. In the eastern part of the Pueblo region, the area drained by the Rio Grande and the Pecos river has been occupied since at least the beginning of the 12th century. Exploration in this region will without doubt yield sites with much earlier dates. The Pueblos of today that dot the valley of the Rio Grande are inhabited by direct descendants of these early Americans.

If we examine the data from another point of view, it becomes apparent that the Basket-Maker period extended from before the middle of the 4th century to the closing years of the 9th century; that the Pueblo I period developed in the closing years of the 7th century; and that the transition from it to Pueblo II took place around 875. The classical Pueblo III period had its inception at around 1000, and the great drought of 1276 to 1299 brought it to a close. The period of decline from then until modern times is usually broken into two periods separated by the Spanish Conquest, although the influence of the Spaniards was really very little until the beginning of the 18th century.

It is quite probable that the range of dates will be extended somewhat, but these extensions will not materially affect the conclusions that have been drawn, namely :—That the various Pueblo stages followed each other rather rapidly; that the Basket-Maker period, formerly considered to be much more ancient than the Pueblo, was contemporaneous with the earlier of the Pueblo settlements. The only thing that prevents our assuming it to be an early phase of the later culture is that the Basket-Makers were long-headed people, while the Pueblo people are round-headed.

However, Dr Haury recently discovered in the Mogollon region a Basket-Maker-like culture of round-headed people that may have been the forerunners of the southern Pueblo people. The type site of the Mogollon culture carries a date A.D. 896 to 908. This is later than the date of the Pueblo I remains in the vicinity of Flagstaff, which seem to have existed from at least 680 to 875. A problem to be solved is whether the Mogollon site is peripheral and, therefore, might be expected

## DENDROCHRONOLOGY

to have a late date, or whether it represents a migration of people from the east who, upon their arrival in the Southwest, added Pueblo and Hohokam characteristics to their own culture.

So we see that Dr Douglass' method has compressed a sequence of cultures formerly thought to extend over several thousand years into about 1500 years. Today a half-dozen of his students are applying his methods to archaeology. Others are busy studying the records in an attempt to correlate time more closely with climatic conditions and to discover if possible a method whereby weather conditions may be predicted for a land unusually dependent upon rainfall.

A discovery of great importance to geologists was made by the workers at the Museum of Northern Arizona. For some years archaeologists have known that the ash-fall from the last eruption of Sunset Crater, near Flagstaff, destroyed house sites of the Pueblo I era. After Dr Douglass had extended the Western Pueblo Chronology beyond the 7th century, it became possible to assign dates to these destroyed sites. It seems that they had been erected in the early years of the 9th century. Mr MacGregor set about a systematic study of the hundreds of sites in the region and has proved conclusively that the last great volcanic eruption took place between 860 and 910 and very probably within a few years of 885. This was rather startling news for the geologists, for, although they knew that Sunset Crater had been recently active, they had been applying the word recent in its geologic sense and had no idea that the eruption had occurred in historically recent times. This discovery has caused considerable revision of geologic theory concerning these states.<sup>1</sup>

Before the development of dendrochronology, the placement of the Pueblo ruins in some sort of sequence depended almost entirely upon pottery. The precise dating derived from tree rings has by no means replaced this procedure. In many respects tree ring dating has clarified it, but in others it has left us in a state of confusion. And not until a great many more sites are dated will that confusion be eliminated. The Rio Grande site, Puyé, is an example of how tree rings occasionally wreak havoc upon the theories of archaeologists. A careful search of the old Spanish chronicles shows no reference to this site being occupied

---

<sup>1</sup> It seems to me, from the finds that have been made, that the geologists must greatly shorten their estimates of age of recent formations in North America. The discovery of modern man incontestably associated with extinct animals in the region of the Southwest can no longer be taken as an indication of great antiquity for man, but rather as an indication of the survival of certain forms of animals, now extinct, to rather recent time.

## ANTIQUITY

at the close of the 16th century, when the conquistadors were moving through the land. The pottery found by Dr Morley during his excavation is largely glazed ware, but there is a good representation of earlier and later types. The whole picture is such that it is perfectly reasonable to believe that the site had been abandoned several centuries when the Spaniards arrived. Mr Stallings, however, found that the timbers recovered from the ruin dated from 1507 to about 1565; and it is quite probable that there were Indians living there as late as 1600, since one timber yielded a doubtful record of 1594. Whether the Spaniards knew of the village but considered it too unimportant to record we shall probably never know. But tree ring dates have corrected a misapprehension concerning it.

Another, more general type of pre-tree ring error might well be given. The generally estimated age of Mesa Verde ruins, for instance, was at latest the early years of the Christian era, and by many this site was thought to have been occupied no more recently than the close of the second millennium B.C. When Dr Douglass announced that the major building operations in that great settlement did not stop until the latter half of the 13th century A.D., it came as a great surprise and even caused some archaeologists to doubt the accuracy of his methods. However, he was certain that his dating was correct, since in no instance had he found repetitive sequences of tree ring widths. The trees of that hot arid land have carried with them such an accurate record of the vagaries of weather that today we are able to date bits of charcoal as well as timbers, and thus date the buildings whence they came.

### APPENDIX ILLUSTRATING (SEE FIGS. 3-8)

#### RATES OF GROWTH, REGIONS AND SKELETON PLOTS

FIGURE 3 is a photograph of two radial pieces of piñon logs brought out from the Yampa Canyon. These huge trees were selected because they were growing in locations that indicated that their ring sequences would show some sensitivity to climatic changes. The reason for cutting was that logs had been recovered from a late Basket-Maker or early Pueblo site in the Canyon, and it was thought best to have some recent timbers to compare with the Western Pueblo Chronology, based on trees growing some 300 miles to the south, the application of which was doubtful so far north. Mr W. S. Stallings, jr. found that these northern logs did not show sufficient correlation with the Western



# PLATE I

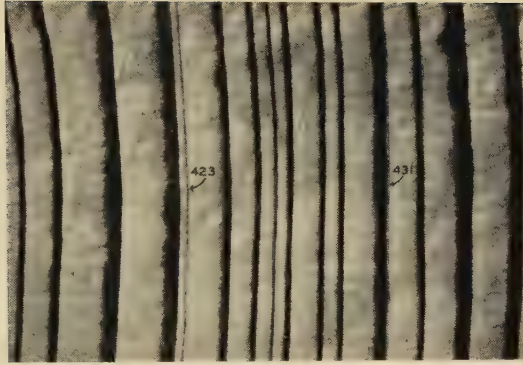


FIG. 1. EPD SIGNATURE IN BE-33: A.D. 423 TO 431, FIRST  
RECOGNIZED AS PART OF AN EARLY CHRONOLOGY IN  
1927; DATING ASSURED IN JULY, 1934 (see p. 410)  
*from Douglas, Tree Ring Bulletin*

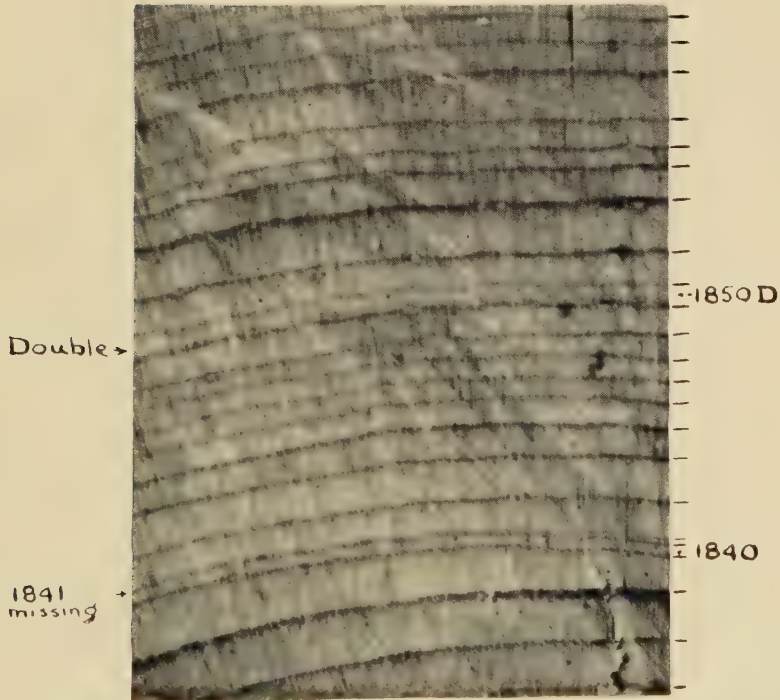


FIG. 2. TYPES OF ANOMALOUS GROWTH, DYP. I, 1858-1837 (see p. 411)  
*ph. F. M. Brown*

# PLATE II



FIG. 3. RADIAL PIECES OF PIÑON LOGS FROM YAMPA CANYON (see p. 424)

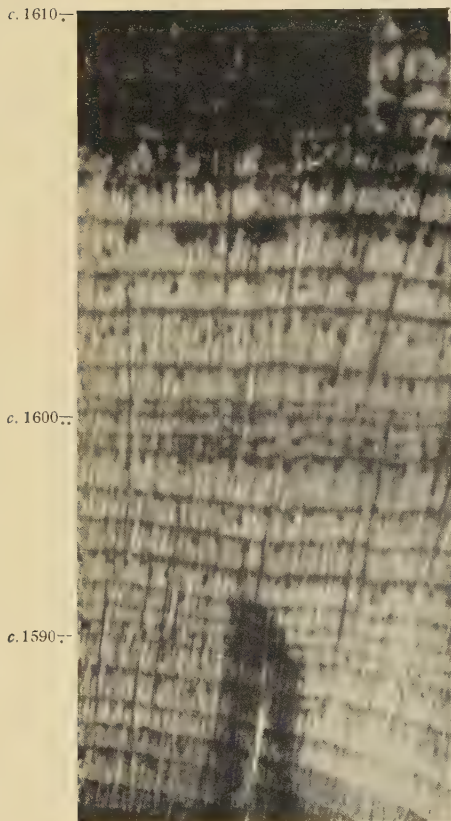


FIG. 4. REGION SURROUNDING YEAR 1600  
(see p. 424 and YC-1, FIG. 6, opposite)

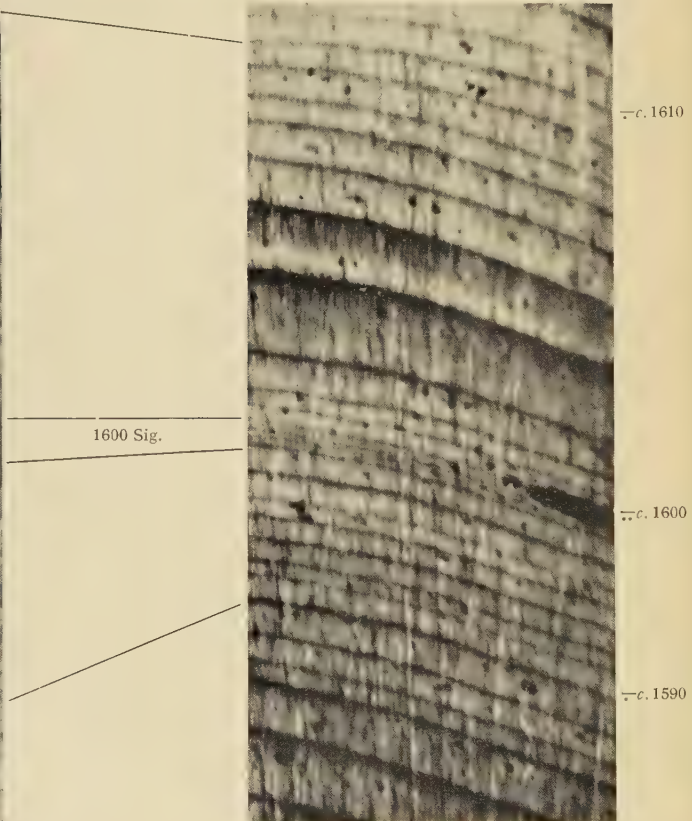
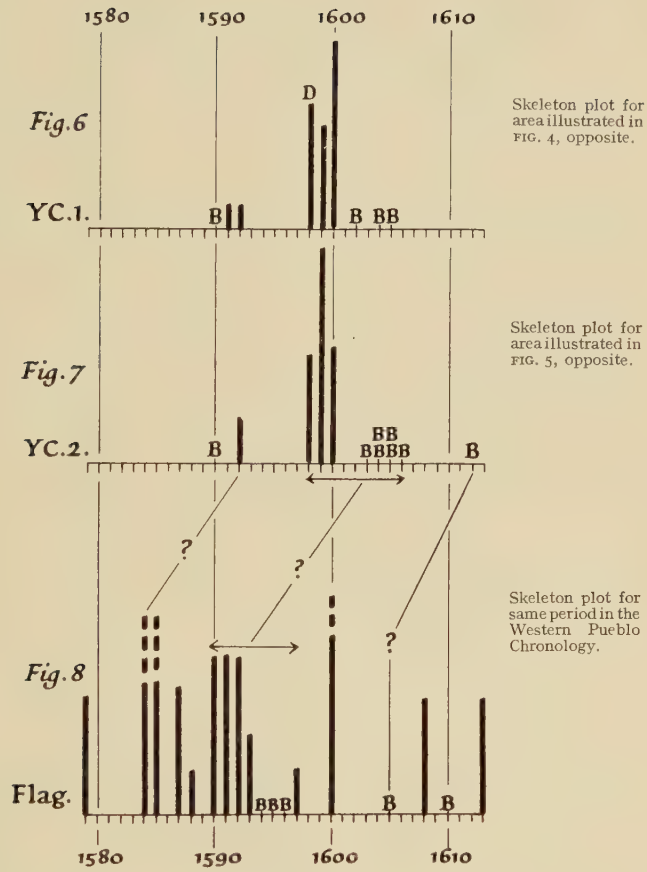


FIG. 5. CORRESPONDING REGION ON YC-2  
FIG. 7 opposite

# PLATE III



FIGS. 6-8 (see p. 424)





## DENDROCHRONOLOGY

Pueblo Chronology plot to warrant assuming any dates from it for the timbers taken from the ruins. On figure 3 the centuries have been marked so that the differences in the rates of growth may be seen.

FIGURE 4 shows the region surrounding what has been assumed to be the year 1600 from specimen YC-1. FIGURE 5 is the corresponding region on specimen YC-2. FIGURES 6 and 7 are the skeleton plots for the areas illustrated in figures 4 and 5 respectively. FIGURE 8 is the skeleton plot for the same period in the Western Pueblo Chronology. It will immediately be seen from figures 4 and 5 that there is a definite and easily recognized signature or sequence of ring widths for the three years *c.* 1598-1600.

In general the rings preceding 1600 are small and those following it are large. In figure 5 the fourth and fifth rings following the signature are particularly large. The difference between the two sections shown is what may be expected in trees growing in the same region but at some distance from one another.

Figure 8, when compared with figures 6 and 7, shows a rather interesting relationship to them. Beginning with 1590, for the northern part of Arizona and the southern part of Colorado, there are four drought years followed by three years of particularly rapid growth. Whether the years 1590-2 in the Western Pueblo Chronology are comparable to *c.* 1598-1600 in the Yampa Canyon is difficult to say. The similarity may be chance, or it may mean that the pattern of climatic conditions moves slowly northward in this region, or that the year *c.* 1598 in the Yampa Chronology actually is 1590 in the Western Pueblo Chronology and that eight missing rings<sup>2</sup> have not yet been discovered between that time and 1933 in the Yampa Canyon Chronology. This last surmise is quite possible since the study of the two specimens shown has been little more than cursory and an insufficient number of specimens have been worked over to make possible the construction of a reliable skeleton plot.

That there is a very distinct difference in the climate of the two regions is well known from the Weather Bureau reports and is indicated in the specimens we have. If Yampa Canyon *c.* 1598 is really the year 1590, the period preceding it should be one of considerable drought since in the Southwest all the trees show a period of little growth between 1573 and 1593. The Yampa specimens do not show so long a drought. However, there was a definite period of low rainfall in that

---

<sup>2</sup> Since this was written three such rings have been detected.

## ANTIQUITY

region during the closing years of the 16th century. This can be seen quite clearly in specimen YC-2 in figure 3.

In the Western Pueblo Chronology the 16-hundreds are, generally speaking, wide rings. In YC-2 a good many wide rings occur in that century, particularly in the first half of it. All this indicates that, in general, the climatic conditions in the two regions were similar but not necessarily identical.

For those who are interested I might append here a note on the photography of tree-ring sequences. The photographs for figures 2 to 5 were made on Panchromatic Process film with Wratten's number 49 filter, a very deep blue. This has been found to be the most satisfactory combination for producing sufficient contrast between the soft growth wood and the compact wood produced during the resting period of the tree and terminating the annual increment.

### A SELECTED BIBLIOGRAPHY

- F. M. BROWN.—America's Yesterday, J. B. Lippincott Company, 1937. Appendix 1 contains the only available compilation of all the important dates derived by dendrochronologists, to December 1936.
- A. E. DOUGLASS.—The Secret of the Southwest solved by Talkative Tree-Rings, *National Geographic Magazine*, 1929, LVI, 745-50.
- — — Dating Pueblo Bonito and other Ruins of the Southwest, *Pueblo Bonito Series*, no. 1, 1935, National Geographic Society, Washington, D.C.
- F. M. HAWLEY.—The significance of dated prehistory of Chetro Ketl, Chaco Canyon, New Mexico, *University of New Mexico Bulletin, Monograph Series*, vol. 1, no. 1, 1936, Albuquerque, New Mexico.
- J. MACGREGOR.—Dating the Eruption of Sunset Crater, Arizona, *American Antiquity*, 1936, vol. II, 15-26.
- The Tree Ring Bulletin*, 1934 to date, Flagstaff, Arizona. A small journal devoted solely to the study of dendrochronology.



# Peasant Crofts in North Pembrokeshire

by SIR CYRIL FOX

THE Admiralty, having purchased in 1937 an extensive area of land in Llanychaer and adjacent parishes five miles SSE of Fishguard, Pembrokeshire, kindly permitted the National Museum of Wales to examine and make records of any sites or buildings of interest therein.

I visited the local headquarters at Trecŵn in June 1937 for this purpose. The site consists of a narrow valley—at one point a gorge with rocky scarps—and its flanking uplands. The western half is occupied by Trecŵn House, its parkland and village, an estate developed in the English manner and providing little of antiquarian interest. The remainder was largely under different ownership, and, apart from Llanychaer church and farm, both of which are modernized, more primitive conditions survive in it. This portion of the area, which includes the picturesque rock-wall of Graig Lwyd, is shown in FIG. 1. Each rectangle on the map represents a dwelling; and it will be seen that settlement is now confined to the floor and eastern side of the valley. It is of the diffuse type, which contrasts so strongly with the nucleated villages characteristic of England and met with in south Pembrokeshire and other anglicized parts of Wales. If the parish boundaries be examined (shown by a line of dots on the map) it will be seen that most of the houses are in Llanychaer parish, the ancient centre of which, the church, has only one farmstead near it. The shaded (red) portion of the map represents part of the common land (rough mountain pasture) of this and the adjacent parish. The dwellings within the area controlled by the Admiralty are overprinted in red.

Of these, two on the west side of the valley streams, like Llanychaer farm, are modern. The remaining eighteen cottages (including two pairs) the names of which are shown in red on the map, are the subject of this article. They are the dwelling-houses of crofts, small pastoral holdings worked by peasant-tenants. Some are in ruins, many deserted and in various stages of decay—conditions not unhelpful to a survey of this character. Reference should here be made to the courtesy of the

## ANTIQUITY

Admiralty representative at Trecŵn, Mr G. P. Lumley, and to the use made of the detailed local knowledge of William Morse, an owner-occupier of a typical steading, born in the district, who accompanied me and my wife throughout the survey.

Ffynnon-goy-uchaf (FIG. 6) may first be noticed, since it provides a typical exterior of a cottage still in occupation, and well looked after. The walls, of coursed rubble roughly squared with large quoins, are whitewashed every spring following the local custom; the roof of local slate is rendered watertight—and indeed airtight—by a grout of lime mortar or cement renewed when required.\* Such cottages show up brilliantly in the sun, dazzlingly white in their rural setting, making the most delightful picture imaginable.

The small size of Ffynnon-goy-uchaf (25 by 17 feet externally), the central doorway, the two small windows with slate sills, and the absence of dormer windows, are characteristic.

The majority of these cottages are on sloping ground, and in such a situation they always face downhill. Thus the backs of the houses are built into the hillside, so that one might step from the garden on to the roof! Ffynnon-goy-isaf (FIG. 7) is sited in this fashion.

Sometimes on an exposed site the roofs are weighted by slabs of quarried stone, mortared on to the slates down each of the gables, as in FIG. 8, where protection against the winter gales was also afforded by a porch—a late addition to the building, now unroofed. This illustration of Llain-wen-isaf also shows an outstanding feature of the elevation of these cots, the large size of one of the chimney stacks. The back view (FIG. 9) shows another universal characteristic: the small window at the big-chimney end of the house.

The door of any one of these houses opens into the living-room. The most striking sight on entering is the great open fireplace at the gable end, usually, as in FIG. 10, with a later fire-grate and bread-oven built in.<sup>1</sup> This illustration of Cwm-giâr, a cottage in the valley, shows the chimney breast, here a massive beam of ship's timber, high above the floor. The fireplace with its inner flanking wall normally occupies two-thirds of the width of the house. FIG. 11, of Carn-deifog-fach,

---

\* Mr Morse remarks that the older method, liming, is preferred to cement, though it is not so weatherproof; for while a gale may loosen half-a-dozen slates on a lime-washed roof, a square yard or more of cement roof may under similar conditions be carried clean away.

<sup>1</sup> See Iorwerth C. Peate in *ANTIQUITY* 1936, p. 458, for an interesting comment on this practice.

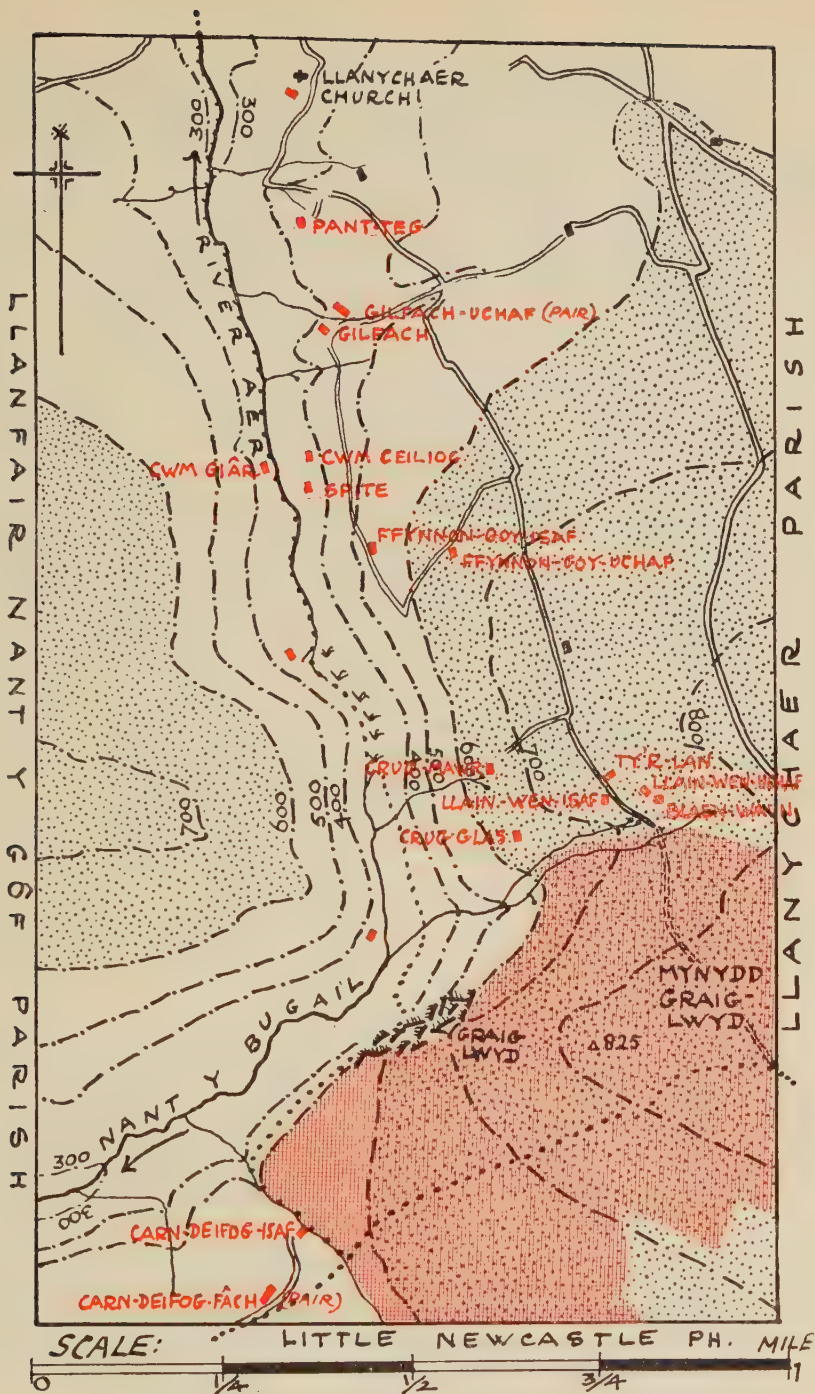


FIG. 1. MAP OF THE AREA: open moorland, and crofts referred to, are shown in red (Based on the Ordnance Survey Map, by permission of H.M. Stationery Office)



## ANTIQUITY

illustrates its relation to the doorway (on the right) and to the little back window (on the left) to which reference has already been made.

In dealing with interiors as they are lived in, one must resort mainly to descriptions, plans, and sections ; the structures are so small that only in deserted houses with gutted and ruined interiors can one stand far enough back to obtain satisfactory results with the camera. The picture of Carn-deifog-fach (FIG. 11) for example was taken from the further corner of the bedroom looking towards the living-room. It may be noted that in this building there is no trace save on the wall-plaster, of the partition—a flimsy wooden structure—which formerly divided the rooms. The outer walls and the chimney-piece are in fact the only parts of these cottages likely to survive prolonged neglect.

We turn then to measured drawings, and FIG. 2 shows the plan of Llain-wen-isaf,<sup>2</sup> the exterior of which has already been illustrated. The house—when examined in June 1937—had only recently been deserted, and retained all its fixtures. The living-room, which is entered from the central doorway through a short passage ceiled with boards, is open to the roof ; the passage is formed by the bedroom partition on one side, and on the other by a fixed screen,<sup>3</sup> some 7 ft. high, which keeps the draught away from the house-place in front of the hearth. The fire of culm, a mixture of clay and coal dust, formerly burned on the floor, but a small grate has as usual been built in at a later date. The chimney being central to the gable, the smoke is directed inwards diagonally up the back of the hearth ; this renders the ‘chimney corner’ on the further side in every respect a comfortable sitting place. There is a shelf just above it in the thickness of the wall. The roof of the ingie is roughly corbel-vaulted.

The recess at the other end of the gable is shut off from the kitchen by a wooden partition and ceiled ‘to keep away the dust’. It is the dairy, lighted by the little window seen in FIG. 9. A mere box, it measures  $5\frac{1}{2}$  by  $4\frac{1}{2}$  ft., thus illustrating the tiny scale of the farm and its slender resources. In front of the dividing wall between dairy and hearth—indeed a projection from it—is a small semicircular stone

---

<sup>2</sup> In this, the northern part of Pembrokeshire, Welsh is universally spoken, and the place-names are, for the most part, compounds of known Welsh words. Llain-wen-isaf for example means the Lower white strip (of land) ; its neighbour is the Upper white strip. Cwm-ceiliog is the valley or hollow of the cockerel ; Cwm-giâr, the valley of the hen.

<sup>3</sup> This is not a normal feature of the houses ; like the porch it was probably put up by the tenant to keep out the southwest wind driving up the cwm.

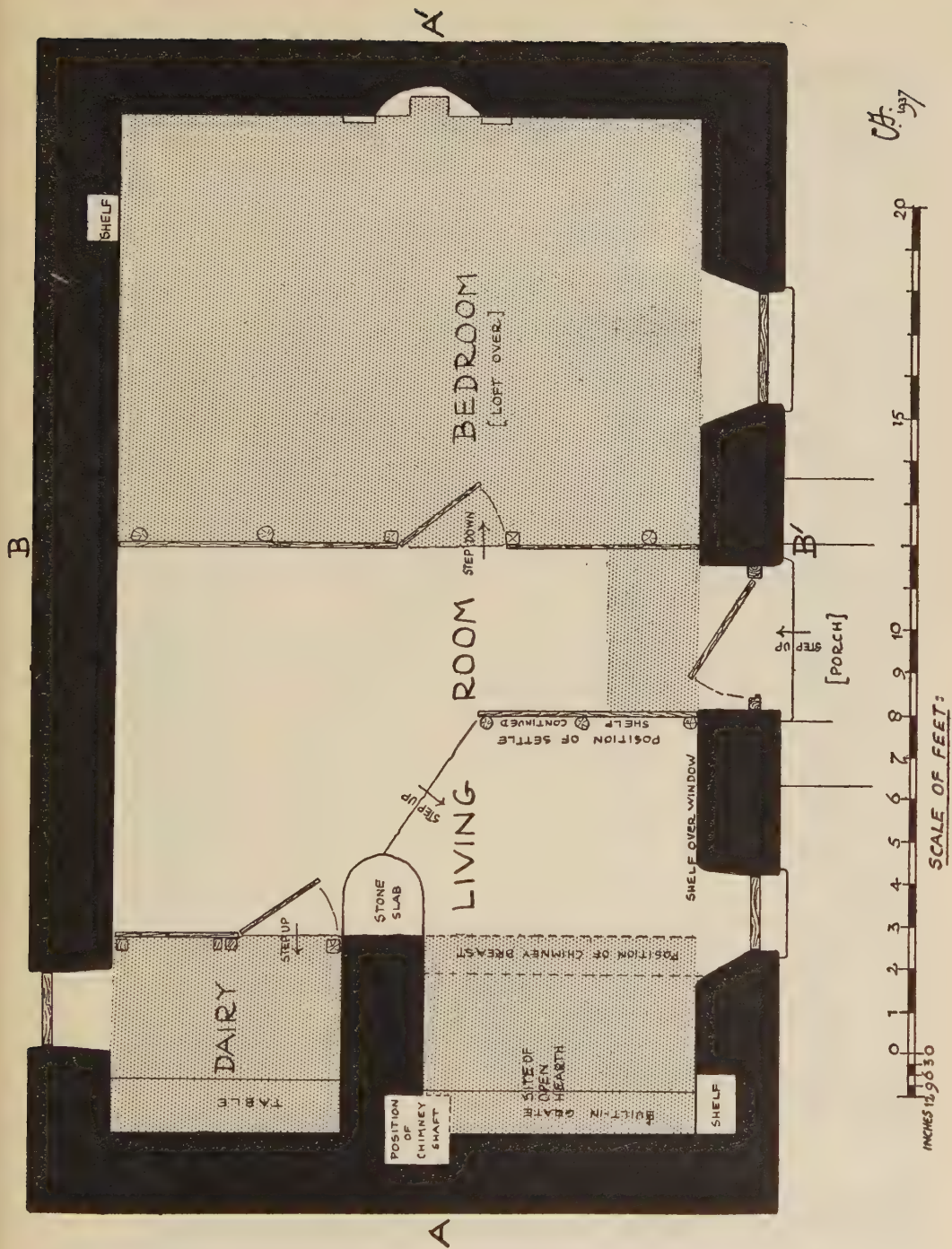


FIG. 2. LLAIN-WEN-ISAF: Plan  
(The stippled area is ceiled—or vaulted; the rest open to the roof)

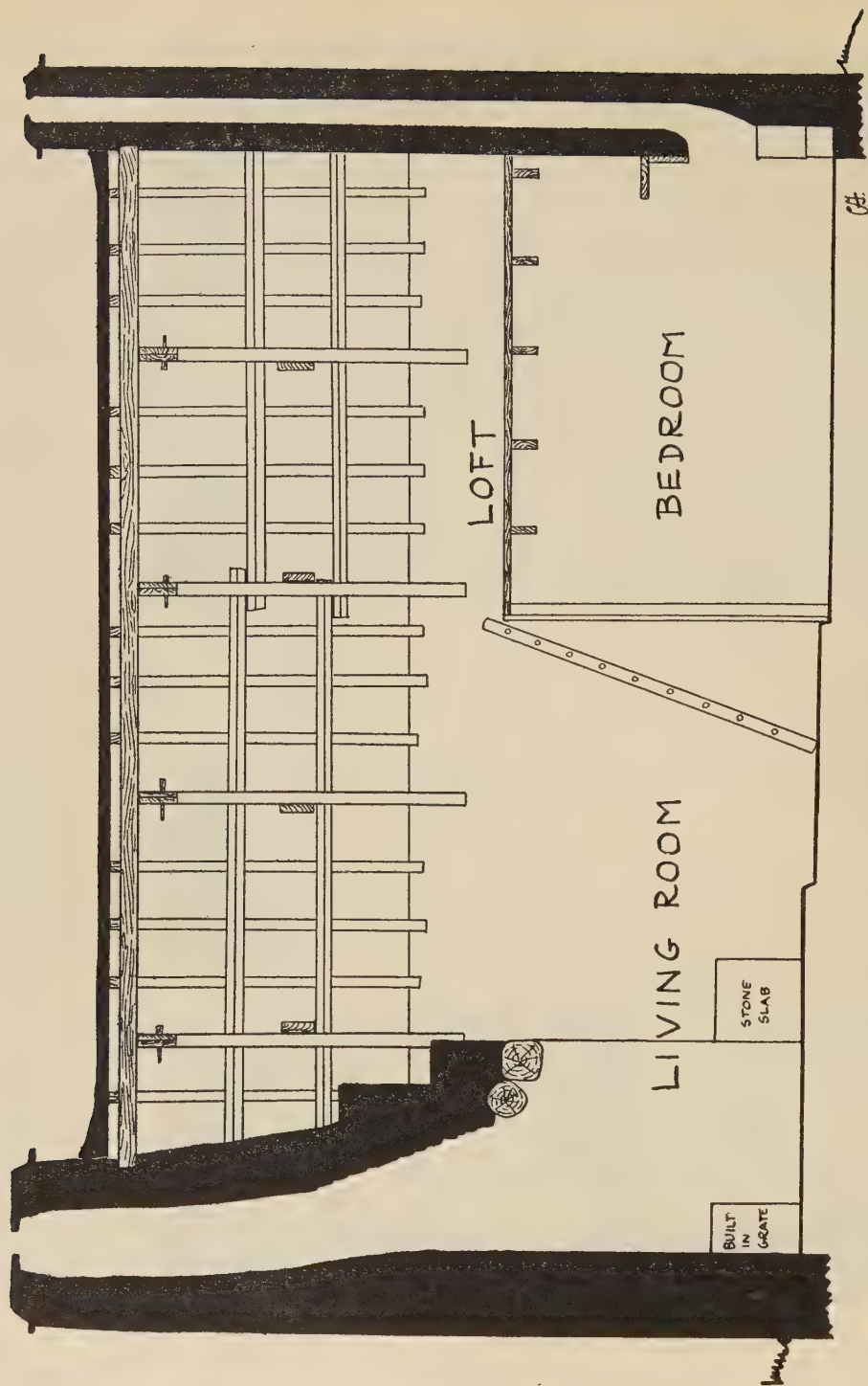


FIG. 3. LLAIN-WEN-ISAF : longitudinal section, line A-A' on plan  
Scale as Fig 2



## PEASANT CROFTS IN NORTH PEMBROKESHIRE

bench (*fainc*) used as a stand for the washing bowl and for culinary purposes generally. This is well seen in the interiors, FIGS. 10 and 11.

The bedroom, ceiled by 6 by 2 joists and wide boards, shows a tiny grate; there is a shelf in the wall where the bed was placed, as that in the living room is over the chimney corner.

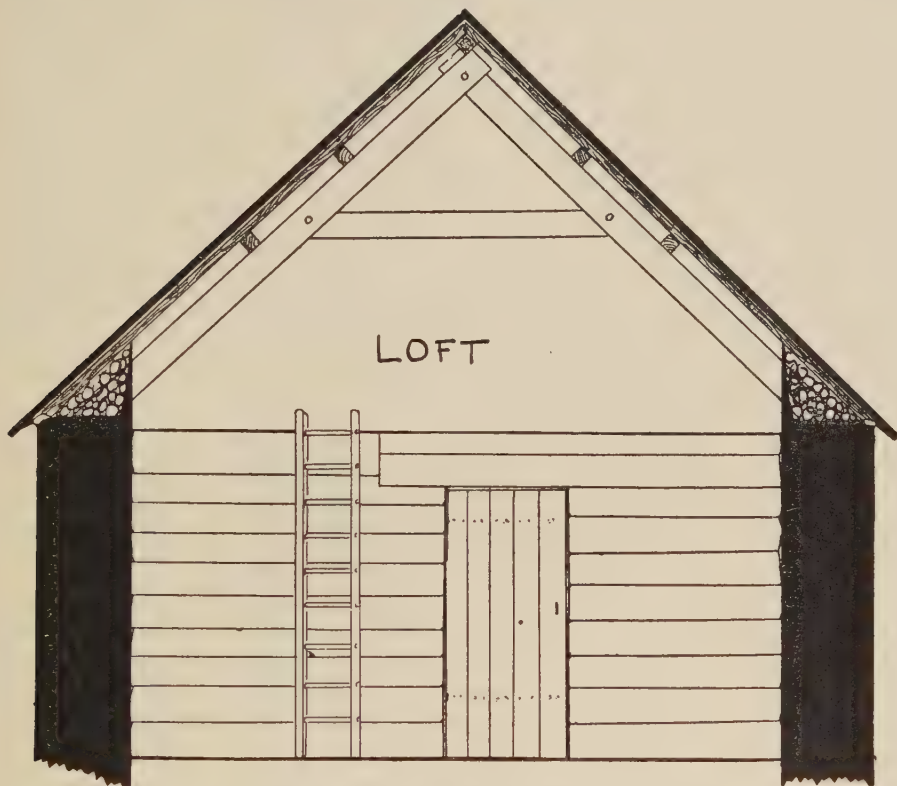


FIG. 4. LLAIN-WEN-ISAF: cross-section, line B-B on Plan. Scale as FIG. 2

The interior of the house was papered, living-room and bedroom (a minor intrusion of urban standards); the hearth-place was colour-washed with the back of the hearth 'tarred to hide the smoke-stains', and the dairy was whitewashed. The floor was originally of stone slabs, but the bedroom and part of the living-room had recently been provided with a cement floor.

Over the bedroom is the loft. This can best be studied in the longitudinal and cross sections (FIGS. 3 and 4). Its floor is of course

## ANTIQUITY

the ceiling of the bedroom and is 7 ft. above the living-room floor ; it forms a dark and airless triangular space the apex of which is the roof-ridge, with no rail or other protection along its open edge. It forms, normally and by custom, a second sleeping apartment, and is reached by means of a movable ladder. Occasionally the loft is boarded up making it even darker and more airless. FIG. 13 shows (with the distortion unavoidable in a photograph) the square hole at Ffynnon-goy-isaf by which the enclosed loft in this cottage was entered. Mr Morse remembers five children living here with their parents, and the boarding (which is a later addition to the structure) was probably added for safety. It may be noted that the living-room window of this house (just visible in FIG. 7) was only 18 inches square ; that of the bedroom a little larger.

The roof construction of these cottages is simple. It consists of three or four main trusses of elementary form with collar-beams, pinned together with treenails ; their overlapping (and flush) upper ends forming a notch in which the ridge rests. This is well seen at Blaen-waun (FIG. 14) and is a technique frequently met with in Wales from medieval times onwards.

The construction thereafter, with purlins and common rafters, follows the usual practice. The customary angle of slope approximates to  $45^{\circ}$ . The general appearance from inside is well seen in FIG. 15, the roof of Carn-deifog-isaf. These roof-trusses are coeval with the building ; but the roofs of the cots in general are flimsy and poor, and in consequence many are seen to be replacements.<sup>4</sup> This flimsiness is, as the plan and sections suggest, characteristic of all the carpentry in the building, contrasting strongly with the massive masonry of the walls. The windswept character of the country, making long and straight timber difficult to obtain, is probably sufficient to account for the lack of a good tradition in woodwork.

An interesting feature of the roof construction is the care taken to eliminate draughts. When the roof has been completely framed the walls are built up (' beam filling ') so that the ends of the main trusses, and sometimes the lower parts of the common rafters, are embedded in the sloping wall-tops (FIG. 4).

Similar technique is employed over the open fireplace, the upper surface of its corbelled vault forming an even slope on which the common rafters are laid and sometimes embedded. This feature is

---

<sup>4</sup> In the Sections (FIGS. 3 and 4) a measured drawing of a typical original roof has been inserted, since the existing roof at Llain-wen-isaf is modern.

## PEASANT CROFTS IN NORTH PEMBROKESHIRE

well shown in FIG. 14 of Blaen-waun and FIG. 16 of Cwm-ceiliog. Moreover when the slating is finished the internal face of the wall is plastered up to the slates, as shown in FIG. 15, and in the sections (FIGS. 3 and 4) ; and since the roof was grouted externally (p. 428) it was completely airtight. Only by such devices could an inadequately heated interior open to the roof be made habitable in a wet and windy countryside.

The reader will have noticed that the Llanychaer cottages are singularly uniform in their construction and internal and external features. They are, however, of different dates, and vary in detail. A study of these minor differences enables fourteen of the houses to be brought into a rough sequence; these are listed in the TABLE (p. 440). In our first group the masonry is of early character ; the walls are built of boulders, some unhewn, others roughly faced, packed and wedged with slivers of stone ; there is moreover no lime-mortar, save in the chimney construction. These characters are shown in FIG. 16. Each house has one hearth only. Next comes a group also with one hearth, but with masonry of quarried stone roughly coursed, with squared quoins ; Blaen-waun (FIG. 14) is a good example. The two examples of paired houses in the area come into this group ; one pair, Carn-deifog-fach, has a window at the back as well as the front.<sup>5</sup> A third group, represented by the illustrations of Llain-wen-isaf (FIGS. 8, 9), has a second chimney ; the window- and door-heads in this group are sometimes of brick, and the loft may be boarded up.

The fourth group has the exceptional amenity of a window in the gable, to light the loft ; it also has a heavier overhang to the eaves (the common rafters project) and higher walls, the wall plate being 8 to 9 ft. up, as against a normal 6 to 7 ft. (see FIG. 17 of Carn-deifog-isaf).

That this sequence—the latest member of which probably dates from about 1800—represents a cultural succession is almost certain ; that it represents a chronological succession is also probably true, with reservations. The use of the gritty earth of the district for binding material points to a time when lime mortar was very difficult to obtain,<sup>6</sup>

---

<sup>5</sup> This pair of houses is on level ground, and the variation from the normal may not have much significance. The occurrence of paired houses represents, I think, a definite intrusion of urban ideas into this countryside, probably in the 18th century ; rows of two-roomed cottages are not uncommon in the older parts of Pembrokeshire townships.

<sup>6</sup> Dr F. J. North points out to me that in George Owen's 'Description of Pembrokeshire' (1603), there is a reference to the contemporary scarcity of lime in North Pembrokeshire—'in *Kemes, Killgarran, & Dewisland* where the lyme wanteth, . . . they vse mortar of Clay or erth to make their stone walles . . . (ed. H. Owen, 1892, p. 78).



## ANTIQUITY

and it can hardly be coincidence that five out of eight houses in our first two groups are thus constructed. The use of earth as mortar still persists, but it is now used, Mr Morse tells me, only for cowhouses, pigsties and such-like buildings—‘ It sticks well when it is wet ’. That the majority of the ruined examples fall into the first half of the sequence also suggests that this sequence is chronological.

These variations then, being all in the nature of improvement, economy, or increased convenience, represent the impact of the developing civilization of Britain on a remote and isolated peasant community.

Nothing, however, has emerged from their study to induce us to modify our original conclusion: the uniformity of type remains the most interesting and important feature of the cottages. This uniformity extends to size; the measurements given in the Table show how limited is the variation. The fourteen buildings range in internal length only from 19 ft. 1 in. to 27 ft. 1 in., and in breadth from 12 ft 5 in. to 13 ft. 8 in. Thus we are studying the material aspects of a permanent and fixed tradition and way of life—the demands of those bred in it were practically unchanging from generation to generation.

One further point of some interest arises. So strong was until recently the cultural tradition that these cots represent, that a house of two stories in the area—Pant-teg, of mid-XIX century date—has the ground-plan we have described only slightly modified. The dairy recess is there—but it is occupied by the staircase, the dairy being in a lean-to. The ingle-nook remains with its high chimney breast; there is a built-in hearth. When this house was built, ‘ by two sailors for their parents ’, Mrs Phillips, the present occupier, informed us, ‘ it was looked upon like a castle by the rest of the people ’.<sup>7</sup>

Though the majority of the cottages face downhill, as has been said, the rule is not invariable. On fairly level ground, the principal front may face in any direction. Whether such grouping as exists in the area, in particular at the head of Nant-y-Bugail (see FIG. 1, Map) was due to desire for propinquity, to the nearness of the ‘ common ’,

---

<sup>7</sup> There is one large farmhouse in the neighbourhood of the cottages, Garn, in Llanychaer parish. It is round-chimneyed, a (medieval?) structure of the type described by Romilly Allen (*Arch. Camb.*, 1902, p. 1 ff.). Its arrangement is essentially that of the cots; the accommodation is on two floors at one end, at the other is a living room open to the roof. The entrance passage is in the middle.

## PEASANT CROFTS IN NORTH PEMBROKESHIRE

or to the existence of numerous springs of fresh water and a stretch of fertile ground at this spot, I am not prepared to say.

The cots are the habitation of crofters, and a typical inhabitant is shown in FIG. 19, with his 'Irish' spade, significantly the only form of this tool used in Pembrokeshire, on his shoulder. Each cottage has associated with it a cow-shed and pigsty, and sometimes a little cart shed, pony shed or fowl-house, and a culm store—the latter a small

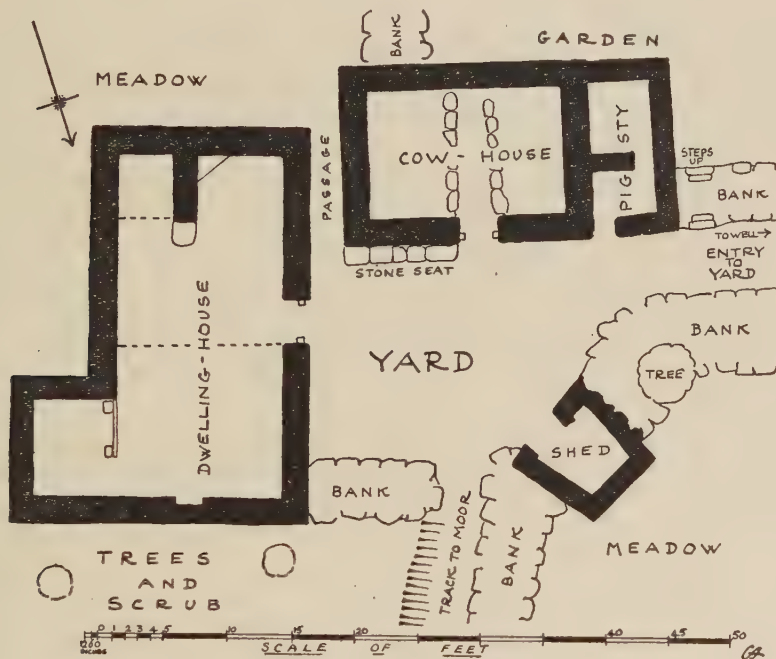


FIG. 5. CARN-DEIFOG-ISAF: sketch plan of the Steading

oval dry-walled receptacle. Privies are entirely unknown. There is no regular arrangement of the outbuildings; the cow-shed may be built on to one gable end of the cottage as at Ffynnon-goy-isaf (FIG. 7) or separate from it as at Carn-deifog-isaf. This latter, as being the most compact of all the steadings, is planned in FIG. 5, and illustrated in FIGS. 17, 18. The small scale of the yard is shown by the fact that the photograph (FIG. 17) was taken from its furthest corner! The thick high boundary walls of earth revetted with stone, shown on the plan, are a feature of the field divisions in Pembrokeshire.

## ANTIQUITY

Each croft has several small grass fields, and a garden ; there is no ploughland. The general setting, and the geographical relation of many to the moorland which borders the settlement, is well shown in FIG. 12—Carn-deifog-fach. Each crofter has the valuable right of grazing sheep on this moorland, which is a part of the great Presely upland, and covers well over a thousand acres in Llanychaer parish alone. The rent of an average holding with 6 acres of land was, Mr Morse told me, £11.

Though primitive, the Llanychaer cottages are not ancient. I doubt if any one of them, even the most ruinous, can be more than three centuries old ; and in some respects—the masoncraft of the vaulted ingle-nook and the sloping chimney shaft of all the houses, the paired construction of four, and the secondary fireplace of many—the technique is sophisticated. But the sophistication they show is but partial ; primitive elements survive, indeed dominate the design. In essence, we are studying small rectangular structures open to the roof, each with a hearth. Nothing could be simpler—except a round hut, and that form was dying out in Wales in Roman times.<sup>8</sup> Furthermore, the partitions, which are obviously a secondary development, provide as we have seen a remarkably primitive feature, the loft which extends over only half the interior.

This N. Pembrokeshire house-type represents then in its simplicities primary and secondary, an ancient tradition ; it is a survival into modern times of the core round which the peasant culture, in one of its numerous forms, so significant for Welsh history, was built up. I say ‘ in one of its numerous forms ’, for though the two-roomed cottage is, or was, widely distributed in Wales, the building technique and the lay-out we have described has a much more limited spread ; as far as my knowledge goes it is coastal, and west coastal at that. My colleague Mr Iorwerth Peate is working on the geographical distribution of the various types of Welsh houses, and exact information on such points as this will in due course be forthcoming.<sup>9</sup>

Mr Peate suggests, and I agree, that constructional technique is largely conditioned by environment, and Pembrokeshire features—such as the grouted slate roofs—may therefore be a late development. But this is not the case with lay-out ; such spatial relationships as that of dairy to hearth, so constant in our house series, are, I suggest, not

---

<sup>8</sup> It survives today, I think, only in the ‘ Welsh pigsty ’.

<sup>9</sup> See his paper ‘ Some Welsh Houses ’, *ANTIQUITY* 1936, x, 448 ff.



## PEASANT CROFTS IN NORTH PEMBROKESHIRE

superficial or recent, but ancient and fundamental, linked to customary procedure in the basic activities of human life. Differences in these relationships represent, on this view, very early cultural divergence. If this be true the Pembrokeshire cottages represent one of the many strands of culture which in the Dark Ages or earlier went to the making of the social and economic pattern of rural Wales, which lasted so long and which is now so rapidly breaking down.

Furthermore, these cottages represent a regional type of a well-known house-form of wide distribution in south-western and northern England, and in Scotland ; they are also characteristic of Ireland, to go no further afield. Whether this spread is due to powerful influences operating along the western sea route, or to the survival in the Highland Zone of Britain of primitive forms and a social class extinct or nearly so in the Lowland Zone is an interesting problem. Clearly it is urgently necessary, as a basis for the scientific study of the social anthropology of Britain, that the two-roomed cottage should be measured, planned and described in all its variations, and that the range of these variations should be plotted. Urgently necessary ; because though these house-types are at present common enough, in Wales at all events, recent legislation, applicable to Britain generally, is hastening their destruction by imposing standards of accommodation which must eliminate their special—and for our purposes vitally important—features.

This destructive process is aided by a tendency even more powerful—the movement of the young people away from the out-of-the-way places where the cottages best survive. Of eighteen cottages visited and measured at Llanychaer in the course of the present survey, only three were still inhabited ; it is still more significant that of the fifteen unoccupied cottages, seven had been deserted within the last few years. That this refusal of a traditional mode of life is primarily due to primitive conditions in the cottages is improbable ; rather, it is the croft system that has broken down in the area. We must suppose that the life is too hard, the rewards too slight, the inconveniences of isolation too manifest. The croft cannot today yield a ‘ living ’, Mr Morse tells me, in his district.

The reader may think that the plans and descriptions in this article of a Llanychaer cottage are unnecessarily detailed. I would plead that this is done ‘ as some defence against the march of Time ’. Such a cottage as Llain-wen-isaf ought long ago to have taken its place in a series of the primitive dwellings of Wales in a National Open-Air Museum, but such a folk-museum seems as far from realization as

## ANTIQUITY

ever ; and the best that can be done today is to make a record sufficiently detailed to permit students, in a more enlightened age, to reconstitute a ruined or altered example. Only ruined or altered examples are likely then to remain.

### TABLE

#### *Analysis of fourteen cottages in North Pembrokeshire*

(The measurements are internal, overall)

#### GROUP A. One hearth : early masoncraft.

- |    |                     |                             |
|----|---------------------|-----------------------------|
| 1. | Crug-glas (ruin)*   | 20 ft. 1 in. by 12 ft 5 in. |
| 2. | Cwm-ceiliog (ruin)* | 22 ft. 9 in. „ 13 ft. 3 in. |

#### GROUP B. One hearth : rubble roughly coursed, squared quoins, stone or wood lintels

- |    |                         |                               |
|----|-------------------------|-------------------------------|
| 3. | Spite (ruin)*           | 20 ft. 5 in. by 12 ft. 11 in. |
| 4. | Blaen-waun (unroofed)*  | 23 ft. 1 in. „ 13 ft. 5 in.   |
| 5. | Gilfach-uchaf A (ruin)* | 19 ft. 1 in. „ 13 ft. 0 in.   |
| 6. | „ „ B (ruin)*           | 21 ft. 0 in. „ 12 ft. 9 in.   |
| 7. | Carn-deifog-fach A      | 24 ft. 6 in. „ 12 ft. 7 in.   |
| 8. | „ „ „ B                 | 22 ft. 11 in. „ 12 ft. 8 in.  |

#### GROUP C. Second fireplace : window and door-heads sometimes of brick

- |     |                                |                              |
|-----|--------------------------------|------------------------------|
| 9.  | Ty'r-lan†                      | 21 ft. 3 in. by 13 ft. 2 in. |
| 10. | Llain-wen-uchaf (partial ruin) | 26 ft. 0 in. „ 13 ft. 2 in.  |
| 11. | Llain-wen-isaf                 | 23 ft. 10 in. „ 13 ft. 8 in. |
| 12. | Ffynnon-goy-isaf†              | 22 ft. 8 in. „ 13 ft. 6 in.  |

#### GROUP D. Refinements additional to second fireplace‡

- |     |                  |                              |
|-----|------------------|------------------------------|
| 13. | Cwm-giâr         | 22 ft. 0 in. by 13 ft. 4 in. |
| 14. | Carn-deifog-isaf | 27 ft. 1 in. „ 13 ft. 4 in.  |

---

\* In these buildings lime mortar was used only for the hearth and chimney construction.

† Loft recently boarded up, with hole for entry.

‡ Higher walls : heavier overhang to eaves (common rafters project) ; window to loft (in gable). Carn-deifog-isaf has also a small lean-to.



FIG. 6. FFYNNON-GOY-UCHAF: exterior, front (*see* p. 428)  
FIGS. 6-19 *ph.* National Museum of Wales



FIG. 7. FFYNNON-GOY-ISAF: exterior, front (*see* pp. 428, 434, 437)





FIG. 8. LLAIN-WEN-ISAF : exterior, front (see pp. 428, 431, 435)  
(see also Pls. 2-4)

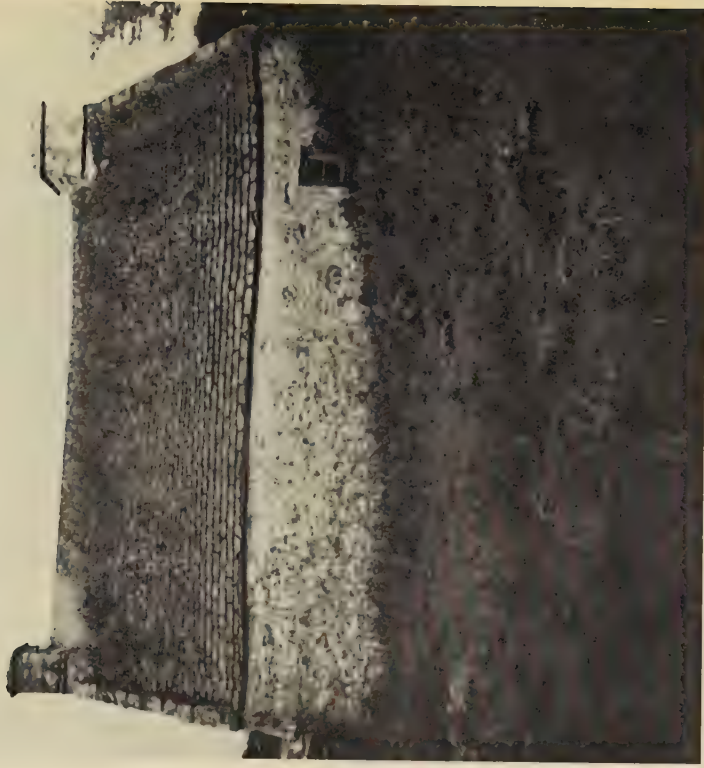


FIG. 9. LLAIN-WEN-ISAF : exterior, back (see pp. 428, 430-5)

PLATE III



FIG. 10. CWM-GIÅR : fireplace (*see* pp. 428, 433)



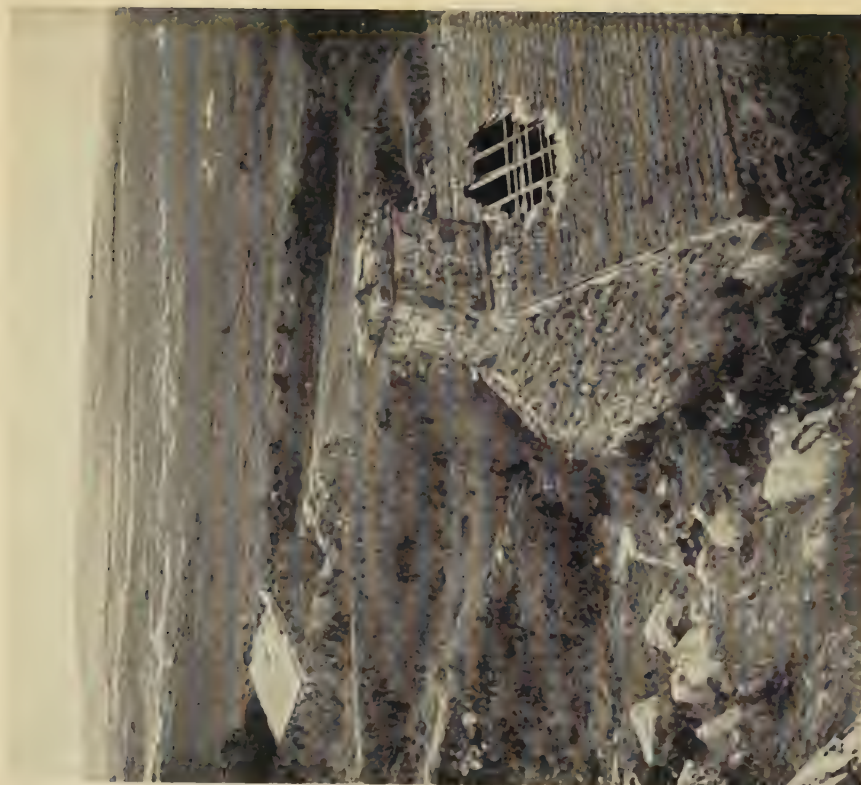


FIG. 12. CARN-DEIFOG-FACH : on the edge of the moor (*see* p. 438)



FIG. 11. CARN-DEIFOG-FACH : E. house, interior, living-room end (*see* pp. 428, 430, 433)



PLATE V



FIG. 13. FFYNNON-GOY-ISAF: sleeping loft, over bedroom (see p. 434)



FIG. 15. CARN-DEIFOQ-ISAFA : roof (see pp. 434, 435)



FIG. 14. BLAEN-WAUN : cottage with one fireplace (see pp. 434, 435)





FIG. 16. CW.M.C.EILIOG: hearth gable (*see* p. 435)



FIG. 17. CARN-DEIFOG-ISAF: the yard (*see* pp. 435, 437)





FIG. 19. THE CROFTER GOES GARDENING (*see* p. 437)



FIG. 18. CARN-DEIFOG-ISAF : the steading from the south (*see* p. 437)  
(*see also* FIG. 5)

# The Long Barrow in Brittany

by STUART PIGGOTT

THE English long barrows have for long been a fertile source of discussion, and since Thurnam's paper of 1868<sup>1</sup> there has been much speculation as to the precise Continental affinities of these tombs. It seemed clear from the outset that they were members of the complex family of megalithic tombs distributed from Iberia to Orkney, while Thurnam himself compared more detailed features such as the chamber at West Kennet with such Breton examples as Mané Lud. Subsequent writers, notably Forde,<sup>2</sup> have seen in the Breton many-chambered passage-graves of the type of Keriaval the probable source of such long barrow chambers as Stoney Littleton, Parc Cwm or Wayland's Smithy; but it was difficult to provide convincing Continental parallels for the whole specialized English long barrow type. While certain elements (notably details of passage, antechamber and chamber) could be paralleled again and again in the megalithic series, the persistent and carefully constructed trapezoidal mound eluded search outside Britain. Furthermore, a study of the grave-goods, particularly in the light of a number of recent excavations of barrows in southern England, showed that the long barrows of Wessex, mainly non-megalithic and supposedly derived from the megalithic barrows in the Cotswolds or further west, were apparently contemporary with and an integral part of the earliest Neolithic culture of Britain (Neolithic A) and a similar cultural identity seemed probable in Sussex.

The problems thus presented were discussed by the writer in a recent paper,<sup>3</sup> where it was claimed that since the long barrows of South Wiltshire and Dorset were on the evidence available the earliest members of the group, any search for origins must be directed to this region. In the face of the apparent absence of Continental prototypes the suggestion was put forward (leaving the writer, and doubtless most of his readers,

---

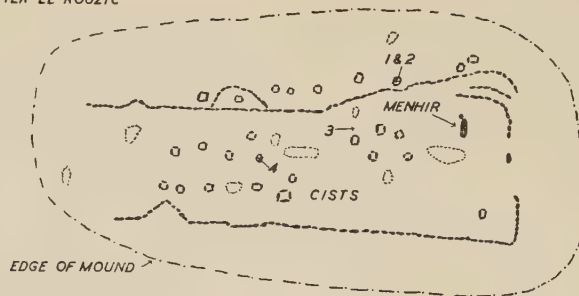
<sup>1</sup> *Archaeologia*, XLII, 161-244.

<sup>2</sup> *American Anthropologist* 1930, N.S. XXXII, 91ff; *Proc. First Internat. Prehist. Congress, London*, 1932, 114-17.

<sup>3</sup> *Proc. Prehist. Soc.* 1935, I, 115-26.

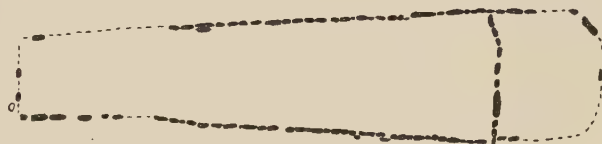
# LONG CAIRNS AT MANIO, NEAR CARNAC

MANIO 1  
AS EXCAVATED: AFTER LE ROUZIC

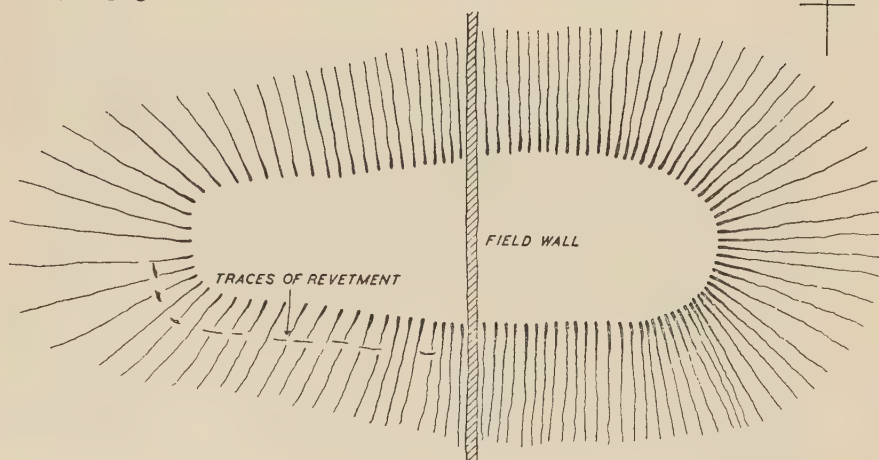


NUMBERS DENOTE POTTERY FINDS

MANIO 3



MANIO 5



S. & C.M.P. 1937

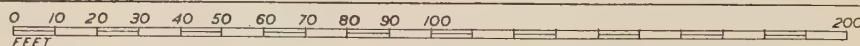


FIG. 1



## THE LONG BARROW IN BRITTANY

unconvinced) of an indigenous origin of the type in southern England, although it was pointed out that, could convincing evidence be obtained from northern France, the distribution pattern certainly suggested a movement from Armorica to Dorset.<sup>4</sup>

It is clear that the requirements of any claimants for the position of proto-long-barrows are twofold : they must present the features of the angular (usually trapezoidal) mound, defined by a peristalith or dry walling in stone country and by palisades and revetments elsewhere, and they must belong to a culture chronologically early enough to allow of their appearance in southern England in Neolithic A times. In addition, the presence of earthen long barrows of types which though containing multiple burials, structurally preclude successive interments in the strict megalithic tradition and are securely dated to the earliest phase, suggests that this successive burial practice may not be an original feature.

Field and museum work in southern Brittany early this summer left the writer with little doubt that there exists in this region a class of monument which has strong claims to be regarded as ancestral to the English long barrows : monuments which, although distinguished as a type by le Rouzic fifteen years ago, and by him for long considered as the Breton equivalents of our long barrows, have not received the attention they deserve.

The tombs in question are best represented by a group of four on the plateau of Manio, to the northeast of Carnac, described by le Rouzic.<sup>5</sup> FIG. 1 shows plans of the three best preserved, the numbering being that of his first paper. Of these, Manio 1 is the most important. Its features can best be appreciated from the plan : outwardly it appears today as a low oblong mound, nowhere more than 3 feet high, with a single standing stone, 12 feet high, in its eastern end (PLATE 1). Le Rouzic's excavations revealed a sub-angular peristalith of small stones and a number of small cists or coffers, containing traces of burning, but apparently no actual bones, mostly within the peristalith, although eight and a possible ninth lay outside to the north, while one was enclosed by walling which formed a semicircle against the peristalith. Near the standing stone was a small dry-walled chamber with grave-goods to be described later, and the excavations further

---

<sup>4</sup> *loc. cit.*, 117.

<sup>5</sup> *Bull. Soc. Poly. Morb.* 1921, 85-92. The excavation of Manio 1 is described in *Carnac, fouilles faites dans la région*, 1923, 47-115 ; a summary with plan is in *L'Anthrop.* XLIII, 227-29, and photographs of the pots *ibid.* XLIV, 486.

## ANTIQUITY

revealed the fact that the base of the standing stone was carved with serpent-like designs.<sup>6</sup> The most remarkable feature of the barrow however is the fact that it underlies the great Kermario alignments or avenues of standing stones, four lines of which pass directly across the barrow from west to east, the menhir described above standing at right angles to the stones of the alignments and overtopping them by several feet (FIG. 2).

Manio 2 exists today solely as a badly preserved low long mound, some 250 feet long, with its axis (as in the other examples) east-west

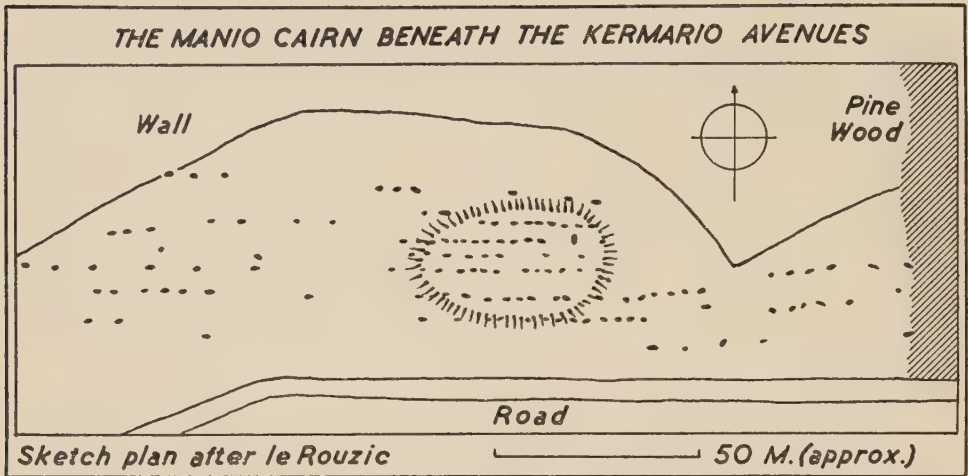


FIG. 2

and a breadth of from 80 to 100 feet. Near its western end but outside the mound is a small standing stone.

Manio 3 consists only of a peristalith, of the trapezoidal form shown on the plan, from which every vestige of the mound has been removed. At the eastern end there are remains of a stone setting which may be the remains of some form of forecourt (PLATES II-III).

Manio 4 of le Rouzic's list is a low *round* cairn, unrelated to the series under discussion.

Manio 5 presents an outward appearance precisely similar to an untouched English long barrow, with slight traces of a peristalith showing through on the southwest. It was excavated by le Rouzic in

<sup>6</sup> *Corpus des Signes Gravées*, 1927, pls. 3-6.

## THE LONG BARROW IN BRITTANY

1916, and from his (unillustrated) report one gathers that a quadrilateral area, 49 by 13 metres, was found enclosed by a peristalith and rough dry walling. Within this, a hearth was found in the southwest angle. Twelve metres from the west wall of the peristalith, and on the main axis, was found a roughly circular dry-walled structure some 4 metres in diameter and 1 metre 80 in maximum height, the internal space measuring about 1 metre 60 in diameter and having a paved floor (PLATE IV).

A similar group of three long cairns (FIG. 3) was excavated by Miln near Crucun'y in 1878.<sup>7</sup> The first of these, known as Mané-Pochat-en-Uieu, was found on excavation to be a quadrangular mound enclosed within a wall mainly of small stones, but incorporating standing stones of some size. The area enclosed by this wall is orientated nearly east and west, with the large end to the east. Within this area were the remains of two structures of piled-up stores covering black earth, while remains of burning with patches of charcoal were noticed at several points on the old surface within the wall.

Of the second cairn, Mané-clud-er-yer, little remained. The east wall, some 16 metres long, was intact, while 32 metres of the north, and 7 metres of the south wall were traced. The plan, so far as can be judged from these fragmentary remains, would appear to have been similar (*i.e.* irregularly quadrangular) to the other two cairns. Mr Crawford has directed the writer's attention to a plan by W. C. Lukis, preserved among the Lukis MSS, of another long cairn of the type under discussion 'about 50 yards due N. of dolmen of Klud-er-yer'; 'explored by Abbé Collette, 1872'.

The third cairn was known by the name of Mané-Tyec, and as can be seen from the plan, was similar in general features to Mané-Pochat-en-Uieu, being surrounded by dry walling incorporating upright stones, but in addition having various earthfast stones standing within the enclosure. Remains of a circular structure were found towards the western end, and again traces of fire on the old surface. The eastern end of the structure was in a mutilated state.

Suspending discussion of the features presented by these cairns we come to a consideration of the grave-goods discovered in the recorded excavations. At the foot of the menhir of Manio 1 was a votive deposit of four small axes of diorite and fibrolite, while a fifth was found near

---

<sup>7</sup> *Bull. Soc. Poly. Morb.* 1883, 36-49, with plans of the cairns but no illustrations of the finds. Two sherds however are illustrated in *L'Anthrop.* XLIV, 495.



## ANTIQUITY

by, together with a quartz pendant. Near the menhir was a cist with a large cover-stone, on the upper side of which was an engraving of a

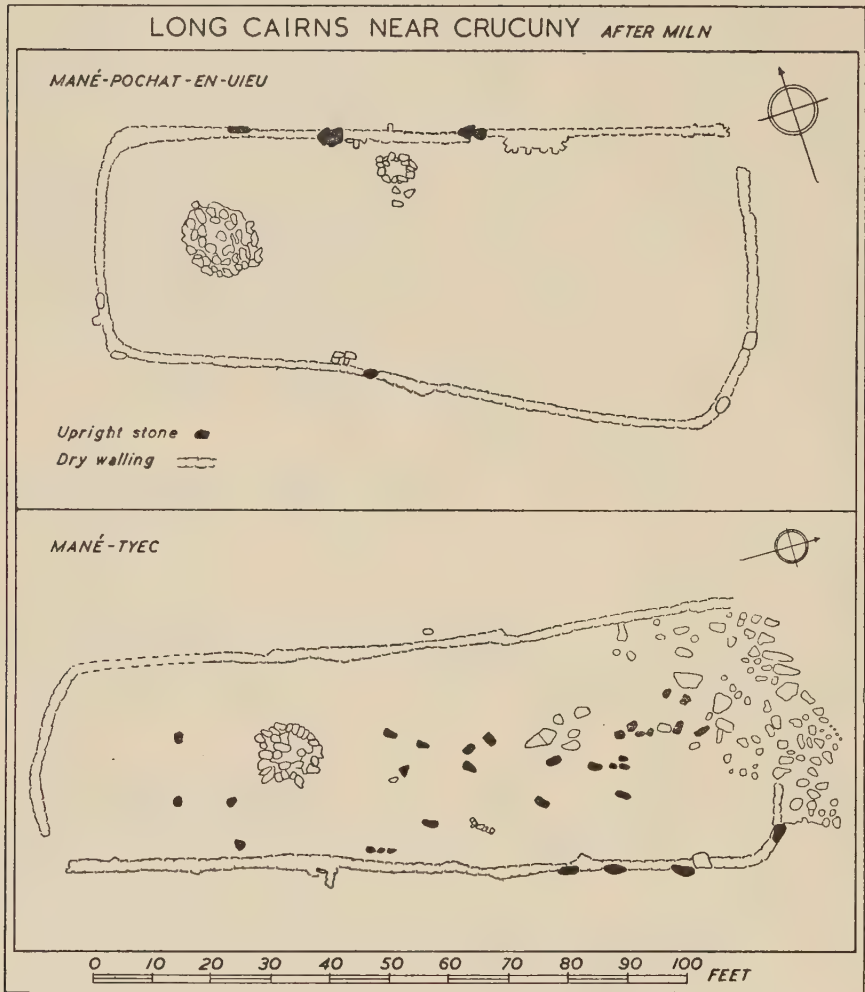


FIG. 3

hafted axe.<sup>8</sup> Fragments of pottery and flint flakes were found scattered throughout the cairn and in the 'cists', but in cist 52 of the original

<sup>8</sup> *Corpus* pl. 6.

## THE LONG BARROW IN BRITTANY

report, and as indicated on the plan in FIG. 1, two pots were found (nos. 1 and 2, FIG. 4), one within the mouth of the other, while in cist 17 was found vessel no. 3. Finally in cist 35 was found part of a flat-based pot, no. 4, illustrated in the original report.

The scanty finds from Manio 5 seem to have included sherds with horizontally perforated lugs, one with a double row of small applied knobs just below the rim, and one with rough incised ornament, all from outside the revetment. A triangular arrowhead was found in the circular structure, and coarse sherds scattered elsewhere in the mound.

The somewhat indeterminate pottery from the Crucun group was found mainly along and usually outside the walls, and included sherds of round-bottomed bowls, perforated lugs, and some sherds with ornament in incised and pointillé technique, illustrated in *L'Anthrop.* XLIV, 495.

The material enumerated above—seven monuments and some exiguous grave-goods—seems little enough to work on, yet all the evidence points in the same direction. The structures are clearly not megalithic in the true sense, and it has been sometimes urged that the closed cists in the barrows represent a degeneration, and that they are at the end of a devolutionary series which begins with such tombs as Ile Longue. But it does not really seem necessary to assume that these cists were inspired by the great megalithic tomb series that comes to Brittany from Iberia. Making a box of small stones to contain the remains of the dead is an idea as obvious in a stony country as is digging a hole in regions of softer subsoil, and the practice may have developed independently of the complex ritual implied and the architectural technique demanded by intrusive cupola tombs. The cist implies a difference of ritual which is important: in such burials the grave cannot be

‘ . . . broke up againe

Some second ghest to entertaine ’

as can a passage-grave—this may be a degeneration, but (to continue the Donne quotation) may not such cists belong to a time in Brittany before

‘ . . . graves had learnt that woman-head

To be to more than one a Bed.’

The position of Manio 1 under the alignments of Kermario is strong evidence for an early date for the type. The exact chronological position of the Carnac alignments is unfortunately uncertain, but on general principles ‘we cannot’, as Forde remarks, ‘claim that

## ANTIQUITY

the alignments are later than the megalithic culture as a whole'. It is hardly possible to dissociate the Kennet Avenue at Avebury from some ultimate connexion with the Carnac series, and here we have definite evidence for a date in the 'B' beaker phase—a period which chronologically cannot be far removed from the Breton bell-beakers, which

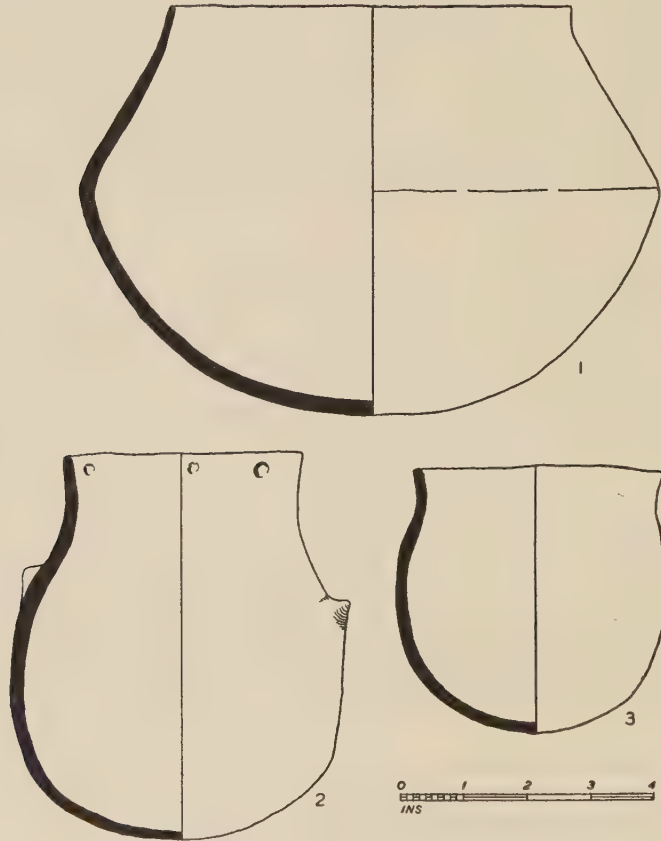


FIG. 4. POTTERY FROM LONG CAIRN AT MANIO (No. 1)  
(Musée Miln, Carnac)

may indeed, as Grimes hinted in 1931,<sup>9</sup> be the parents of our Wessex type of s-profile 'B' beaker (Abercromby's Type Bi). Were this in fact

<sup>9</sup> *Proc. Prehist. Soc. East Anglia*, VI, 348n. The axes of jadeite and allied stones, of Breton type, from various British sites may also be quoted. Cf. Crawford in *L'Anthrop.* XXIV, 641, and map in *Proc. Prehist. Soc. East Anglia*, VII, 154.



PLATE I



MANIO I FROM THE WEST SHOWING MENHIR AT EASTERN END (*see* p. 443)  
PLATES I-IV *ph.* C. M. Piggott

PLATE II



PERISTALITH OF LONG CAIRN AT MANTO (No. 3) LOOKING NORTHWEST, WITH STONES OF FORECOURT SETTING ON RIGHT  
(see p. 444)

PLATE III



PERISTALITH OF MANIO 3 LOOKING ALONG SOUTH WALL EASTWARD

(see p. 444)



PLATE IV



LONG CAIRN AT MANIO (No. 5) FROM THE SOUTH (see pp. 444-5)

## THE LONG BARROW IN BRITTANY

the case, we might see in Avebury evidence of Breton contacts, both in structure and ceramic, in the period of the Carnac alignments.

The pottery gives support to an early dating. In Miln's excavations in the Crucun group sherds were found, as we have seen, along the walls of the cairns, some with ornament which might be compared with the style of the *vase-supports* (Chassey II), which would imply a date well within the main Breton megalithic period, but the circumstances of their discovery leave it possible to regard the sherds as secondary, though such an interpretation, uncorroborated by other evidence, would be dangerous. On the other hand the Manio material is susceptible of an earlier dating.

The vessels illustrated in FIG. 4 stand apart from the general series of megalithic wares in Brittany by reason of their simple bag-like forms, their dark leathery smoothed surface, and their lack of ornament. They stand in fact nearest of the Breton pottery to the 'undifferentiated ancestral continuum' of the Westischekeramik postulated by Childe and equated by Mrs Hawkes with Vouga's Neolithique Ancien and the undecorated wares at the Camp de Chassey, and with our English Neolithic A1. Indeed Vouga has himself expressed the belief that the Manio vessels are the equivalents of his earliest period in the Swiss lakes.<sup>10</sup>

It is hardly necessary to cite parallels to the Breton pots from Neuchâtel: even the flat-based vessel<sup>11</sup> can be compared with an example from Port-Conty,<sup>12</sup> and the sherd from Manio 5 with applied knobs finds parallels in Vouga I at Port-Conty and Cortaillod,<sup>13</sup> although the type persists and flourishes in later periods.<sup>14</sup> The triangular arrowhead from the same cairn is again a type of Vouga II, but two examples are known from the lower level.

It thus seems impossible to escape from the conclusion that we have here the Breton representatives of this early Neolithic culture ;

---

<sup>10</sup> Quoted by le Rouzic in *L'Anthrop.* XLIV, 489.

<sup>11</sup> *Carnac, Fouilles faites, etc.* pl. VII, 4.

<sup>12</sup> *ANTIQUITY*, 1928, II, 405, fig. 6c.

<sup>13</sup> *Neol. Ancien*, pl. XIV, 6; *ANTIQUITY*, II, 406. The close similarity of these illustrations however suggests that they may represent the same sherd !

<sup>14</sup> Middle Neolithic at Auvernier (*ANTIQUITY*, II, 397); Chassey II at Nécropole de Canteperdrix (*ANTIQUITY*, 1930, IV, 33) and at Fort Harrouard (*Cinq Années*, 127, 129); with incised ware at Croh-colle (*L'Anthrop.* XLIV, 496). The examples from Chassey itself (*Déchelette*, I, 555, nos. 15 and 20) are presumably late, and the same may be said of the vessel from Er Mar, Riantec (Du Chatellier, *La Poterie Préhistorique*, pl. 7, no. 9).

## ANTIQUITY

the simple types of which the carinated burnished bowls of the megaliths are the stylized descendants, the native ceramic persisting side-by-side with intrusive wares from the south and west. We may thus have to modify Mrs Hawkes' chronological table,<sup>15</sup> and interpolate a Neolithic culture in Brittany before the carinated bowl-Chassey II complex—a culture which must stand in some fairly close relation to our Neolithic Ai, since both would be but slightly divergent specializations from the original stock. Mrs Hawkes, in discussing the spread of the Vouga I culture, brings it to Britain by an unspecified route across France which however in her view 'certainly did not touch upon Brittany'.<sup>16</sup> If we are to attempt to connect our southern English long barrows (apparently of Neolithic Ai. culture) with the long cairns of the Morbihan, some Breton connexion in pottery is obviously to be sought for, and while the writer agrees with Mrs Hawkes in her contention that the main stream of Neolithic culture reached England by some route eastwards of Armorica, yet there is evidence that it is to Brittany that we must look for certain features in our southwestern Neolithic culture.

Miss Liddell's five seasons' excavations at Hembury Fort in Devonshire, the last reports of which have just been published,<sup>17</sup> have brought to light an extremely important Neolithic culture which at an early stage was seen to possess certain individual ceramic traits that distinguished it from the normal Neolithic Ai culture to which however it obviously belonged. First of these was a total absence of any ornament, even the simple pin-prick and scored decoration which occurs at the lowest levels of Windmill Hill being absent, but second and more important was the occurrence of a type of lug or tubular perforated handle with expanded ends, which the writer distinguished as a 'trumpet-lug' in 1932.<sup>18</sup> A single poor example of this type of handle was found at Windmill Hill, but at Hembury it was present as a recurrent feature, the finest example being on a bowl of fine burnished red ware, the grit in the paste of which was identified as of Dartmoor origin, some twenty miles west.<sup>19</sup> Although nothing comparable was

---

<sup>15</sup> ANTIQUITY IV, 41.

<sup>16</sup> *loc. cit.*, 40.

<sup>17</sup> *Devon Arch. Ex. Soc.*, 1931-37.

<sup>18</sup> *Arch. Journ.* LXXXVIII, 76.

<sup>19</sup> *D. A. E. S.*, *Second Hembury report*, 93; *Third report*, 175. The steatite bead, broken but apparently originally of a type characteristic of Vouga I at Neuchâtel, may be cited as another exotic feature at Hembury. (*Third report*, pl. XVI and p. 182. Cf. Vouga, *Neol. Ancien*, pl. XVII, 17 and p. 48).



## THE LONG BARROW IN BRITTANY

found among the Neolithic pottery from the Legis Tor huts on Dartmoor, similar sites still further west, on the slopes of Carn Brea in Cornwall, yielded Neolithic pottery of Hembury type including a trumpet-lug.<sup>20</sup> No other sites in the extreme west are known, but turning eastwards we find at Maiden Castle in Dorset a Neolithic culture which so far as can be judged in advance of publication seems closely to resemble that of Hembury, and certainly includes trumpet-lugs. Axes of Cornish stones on this site emphasize its western connexions.<sup>21</sup>

These sites, together with one or two others exhibiting less striking peculiarities but apparently culturally identical,<sup>22</sup> constitute a distinct sub-group within our Neolithic A culture, the type-fossil being the trumpet-lug. This is a form of handle which does not appear in the simplest Vouga I pottery: it is clearly a developed form. It occurs however with plain Neolithic ware at the Grotte de Saze, Gard,<sup>23</sup> and at the Camp de Chassey,<sup>24</sup> where the numerous examples are probably to be associated with the undecorated wares of the early phase distinguished by Mrs Hawkes. Its absence at Fort Harrouard again suggests that it is an early feature in the Chassey culture, and probably of central and southern French origin.

In the museum at Carnac is a group of pottery from a rectangular stone cist under a round cairn at Castelic,<sup>25</sup> north of Carnac (FIG. 5). So far as the structure of the cairn is concerned, no connexion with the long cairn series described above can be claimed, and the place given it by le Rouzic in his typological scheme can only be regarded as illusory. The pottery, however, with its simple lugged pots, strongly suggests affinities with that from Manio rather than with any of the main megalithic series, and includes an excellent example of the trumpet lug. On the strength of this group we must, it seems, admit that the trumpet lug may form a feature of the earlier Neolithic pottery

---

<sup>20</sup> *Journ. Royal Inst. Cornwall*, XIII, pt. 1, 92. The sherds are at Truro, and the writer is grateful to Mr Lindsay Scott for directing his attention to their importance in this connexion.

<sup>21</sup> *Antiquaries Journ.* 1936, XVI, 266.

<sup>22</sup> e.g. Haldon, Devon (to be published shortly; cf. *Hembury Fort Exhibition* 1936 (Royal Albert Memorial Mus., Exeter, 1936, p. 13); Holdenhurst Long Barrow, Hants (*Proc. Prehist. Soc.* III, 1937, 1-14), and probably Corfe Mullen, Dorset (J. B. Calkin Coll.—to be published shortly).

<sup>23</sup> St. Germain Museum. Noted by the writer in 1935.

<sup>24</sup> St. Germain Museum, cf. *Fifth Hembury report*, pl. xxxv.

<sup>25</sup> *L'Anthrop.* XLIII, 228.

## ANTIQUITY

of Brittany, and a further connexion between this region and southern England becomes apparent.

We are, however, confronted by several difficulties. The Castelleic tomb is anomalous, and typologically of uncertain date, unless one defines its chronological position by admitting the early character of the pottery, which seems almost an inevitable conclusion. It should be remembered too that, as noted by Schuchhardt,<sup>26</sup> at least one low round barrow is overlaid by the Kerlescant alignments, and there are hints in England that Neolithic A round barrows may not be unknown, and not

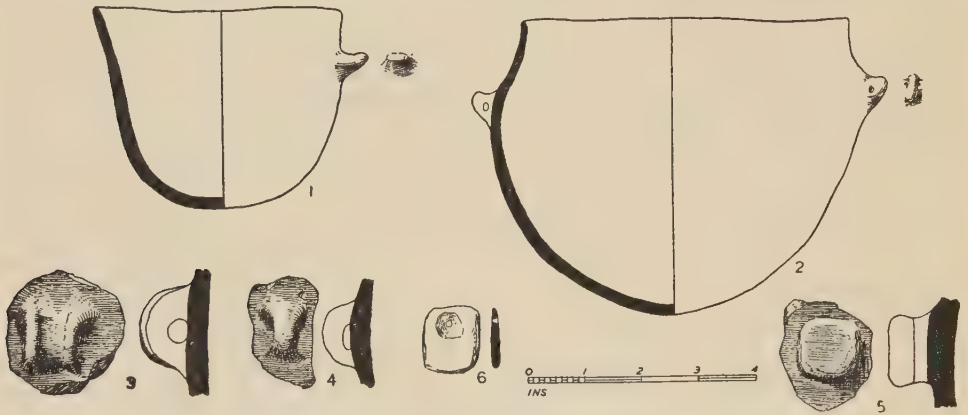


FIG. 5. POTTERY (1-5) AND STONE PENDANT FROM CIST AT CASTELLEIC  
(Musée Miln, Carnac)

necessarily to be explained as the result of 'influence' from Early Bronze Age sources.

Again, on the present evidence, the distribution of 'Hembury Ware' and long barrows in southern England, although overlapping, is not wholly concordant, the more westerly pottery sites being in regions where long barrows are practically speaking absent (although low mounds of the type of Manio 1 may still be awaiting discovery in Devon by careful field-workers). The problem is therefore by no means solved, but the evidence does permit of a working hypothesis which appears to fit in with our present state of knowledge of the ceramic and megalithic sequence of northwest Europe.

It we admit the validity of placing the Manio and Castelleic pottery as equivalent to Vouga I, we begin our Breton ceramic series earlier

<sup>26</sup> *Alteuropa*, 1926, 68-70.

## THE LONG BARROW IN BRITTANY

than Mrs Hawkes would allow in 1934. In the present writer's opinion such a basic culture may well have been established in Brittany at approximately the same time as the inception of the Neolithic A culture in England, and he would see in the Hembury ware evidence of cultural contact. The incised wares of Brittany, as Mrs Hawkes demonstrated, are related on the one hand to the south French ware *à cannelure*, and on the other to the west Scottish-north Irish group of decorated vessels. In south France this ware is chalcolithic, but in one instance at least in Brittany, pre-beaker. While it survives in the Morbihan side-by-side with beakers, one should note in this connexion that not only is it pre-beaker in three sites in Scotland<sup>27</sup> and one in North Wales,<sup>28</sup> but in one tomb in North Uist is earlier than a cup ornamented in the Chassey II style;<sup>29</sup> a type of ware which is itself pre-beaker at the Grotte de Bize, although in Brittany hardly anterior to and in south England represented by pottery which follows immediately upon the beaker phase. It seems probable that this unornamented Neolithic ware stands in Brittany as ancestral to the smooth burnished bowls which form ancillary grave-vessels to the beakers: indeed at Kervilor a bowl with incised pendant loop ornament in the style of Beacharra was associated with an unornamented bowl of fine polished grey ware with a diminutive and vestigial trumpet-lug.

The writer has elsewhere suggested that the typical English 'chambered long barrow' (*e.g.* Uley, Notgrove, West Kennet) may be a hybrid product resulting from the insertion of a passage-grave (or as Daniel has urged, more correctly a gallery-grave) into one end of a long burial mound. The Breton tombs described above bear structural affinities to the English long barrows without megalithic chambers; it is possible that the barrows usually placed at the end of the Cotswold typological series, with closed cists in the body of the mound (*e.g.* Eyford<sup>30</sup>) may have to be regarded as primitive rather than degenerate. (The grave-goods from Eyford could in fact be used to support an early dating, a Neolithic A bowl being found in cist F, and a beaker being demonstrably secondary in D. The jet bead from E is difficult to date, as its closest parallel, from Notgrove, was not in significant association,

---

<sup>27</sup> At Rudh' an Dunain, Skye, *Proc. Soc. Antiq. Scot.* LXVI, 198-9; Clettraval, North Uist, *ibid.* LXIX, 500-16; Unival, North Uist (unpublished, information from Mr Lindsay Scott).

<sup>28</sup> At Lligwy, Anglesey. *Arch. Camb.* 1933, 68-72.

<sup>29</sup> At Unival (v. note above).

<sup>30</sup> *Long Barrows of the Cotswolds*, 94-97.



CHAMBERED CAIRN AT KERIAVAL, CARNAC, SOUTH BRITTANY

N.B THE OUTLINES OF THE  
MOUND ARE SKETCHED

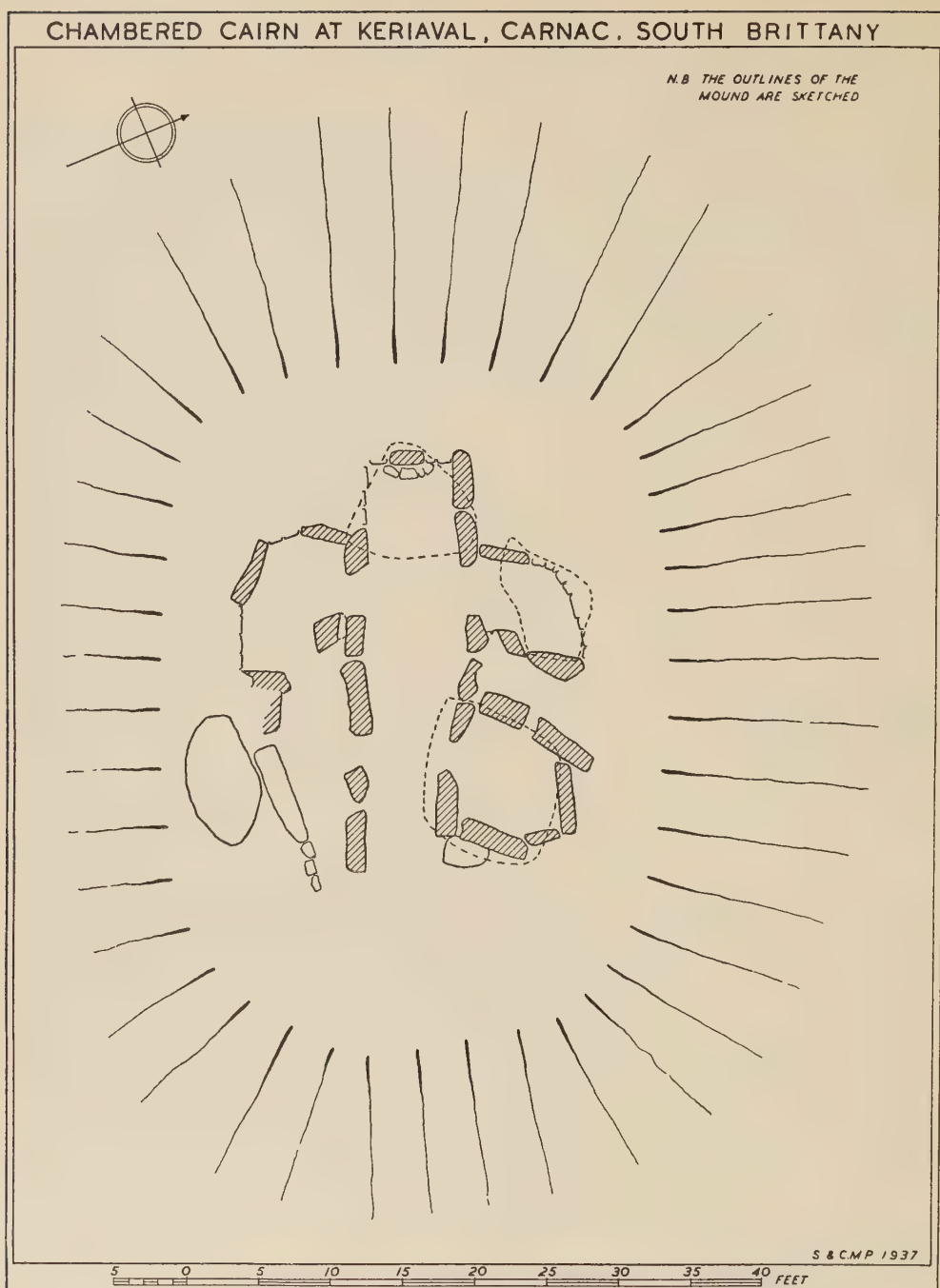


FIG. 6

## THE LONG BARROW IN BRITTANY

but the presence of a jet bead at Hembury<sup>31</sup> should be borne in mind in this connexion). The circular structures in Manio 5 and at Crucuny, may recall the somewhat analogous construction at Notgrove, while the menhir at the eastern end of Manio 1 can be paralleled at Gatcombe (Tinglestone) and possibly at Lyneham in the Cotswolds,<sup>32</sup> and would appear to have had wooden representatives at Thickthorn (Dorset),<sup>33</sup> Durrington<sup>34</sup> and Wexcombe<sup>35</sup> (Wilts), and Badshot (Surrey).<sup>36</sup>

In Brittany it is perhaps possible to regard the insignificant cairns of the type of Manio as ancestral to the monstrous long cairns of Mané Lud, St. Michel or Moustoir, which could be claimed as the survival of the long cairn tradition side-by-side with the great passage-graves, and influenced by the prevalent megalomaniac passion for huge size. The Manio type of long cairn may have a wider distribution than published examples suggest: among the Lukis MSS Mr Crawford has found a plan of an analogous cairn on La Grée de Cojou, St. Just, Ile-et-Vilaine, surveyed by Sir Henry Dryden and W. C. Lukis in July 1867. In one instance, a fusion analogous to that postulated for England would seem to have taken place, for at Grah-niol le Rouzic's recent clearance of the site has revealed a gallery grave with one lateral chamber at one end of a long mound, the gallery only occupying one half of the total length. Since, as Forde and more recently Daniel have urged, the transeptal plan of the Notgrove type appears to have an origin in such chambers in Brittany as Keriaval (FIG. 6), the suspected fusion may have taken place there, and these barrows in England may in fact represent a movement independent of, and probably a little later than, that producing the Dorset and south Wilts group, although the English evidence seems to run counter to any suggested line of approach (*e.g.* the Bristol Channel) which would make the long barrows of South Wales ancestral to the Cotswolds group.

---

<sup>31</sup> *Third Hembury report*, pl. xvi, p. 181.

<sup>32</sup> *Long Barrows of the Cotswolds*, 134, 163.

<sup>33</sup> *Proc. Prehist. Soc.* II, 77-96.

<sup>34</sup> Hoare, *Ancient Wilts.* I, 170. 'On reaching the floor of the long barrow we found a circular cist like a little well, but it contained no interment; from this well-like cist, a tunnel, like a chimney, ascended nearly to the top' [of the barrow]. This clearly represents a circular post-hole, with the decayed post leaving a hollow in the packed rubble of the mound.

<sup>35</sup> Excavated by Mr O. G. S. Crawford and Dr E. A. Hooton in 1914. The unpublished section of the barrow, which Mr Crawford has kindly shown me, presents a feature strongly suggesting a large upright post at one end of the mound.

<sup>36</sup> *Surrey Arch. Soc. Colls.* 1937. cf. also *Proc. Prehist. Soc.* II, 247; III, 173.

# Umm el-Jamal

by GEORGE HORSFIELD

**F**OUR kilometres within the boundary dividing the British Mandated Territory of Transjordan from Syria, 1000 metres above sea level, and on the northern limit of the plain south of the Jabal Druze (Hauran), lie the ruins of Umm el-Jamal. The city is twenty kilometres from Mafrak, where the pipe-line and road from Iraq cut the Hijaz railway on their way to Haifa on the Mediterranean. The Druze Mountain dominates the plain from the north and this monument lies at the foot, the most westerly of a series of ruined basalt-built towns and the most interesting.

The surrounding plain is not a desert of sand. Its ancient fertility is shown by the old field boundary stones, now wasted by wind-erosion and neglect, leaving a dry exhausted soil thinly sprinkled with desert plants and strewn in parts with basalt boulders grey with lichen. Nowadays the rainfall in these parts is negligible and an attempt some years ago to restart cultivation around Mafrak failed ; for the soil was just dust, carried off by the wind in great clouds when ploughing was attempted. Mafrak is now inhabited, water having been found some hundreds of metres down by boring ; and it was the outpost from which men and materials went forward to build the road and pipe-line now stretching down the corridor between Syria and Saudi Arabia to Iraq. Ancient trade routes converged in this neighbourhood and the name 'Mafrak' signifies the 'Junction'. It was in antiquity a strongly fortified site and later a station on the Haj route.

Umm el-Jamal, the mother of camels, known by no other name, has none of the formal lay-out or architecture which distinguished Syrian Graeco-Roman cities of the 2nd and 3rd centuries A.D., although contiguous and contemporary with them. Curiously complete in itself, with a continuous life from the 1st century B.C. to the 7th or 8th century A.D. it was then completely abandoned. Of its history we know nothing except what the monuments tell. With the political collapse of the Seleucids and the Ptolemies in the 1st century B.C., Petra, the metropolis of the Nabataeans, spread its influence outwards, backed



# PLATE I



## UMM EL-JAMAL: PLAN OF LAYOUT FROM THE SOUTH

Among the buildings shown are the :—

- West church outside wall and Gate of Commodus adjoining
- East gate, north of southern block and adjoining Maschecos church by Birket
- Southwest gate in centre of block
- South gate in centre of wall

*Plates I-IV, Royal Air Force Official, Crown copyright reserved*

## PLATE II

West church

Gate of Commodus



Praetorium

### UMM EL-JAMAL: LOOKING NORTH ON WEST SIDE

West church outside wall, Gate of Commodus, Julianos church right top corner, and below, the Praetorium.  
Blocks of houses west and south of the Praetorium



# PLATE III

Barracks



UMM EL-JAMAL

In foreground eastern block of houses; in the background the west block. Below, the barracks, on right the Numerianos church. Below, the double church and houses. In foreground Maschecos church, east gate and southeast church



PLATE IV



UMM EL-JAMAL.

East block of houses from west. In right foreground the corner of Numerianos church.  
Double church centre left. Beyond wall, small church

## UMM EL-JAMAL

by the wealth that flowed into it as the distributor of the Far Eastern trade to the west. In the 1st century A.D. the kingdom of Nabatene extended north from the Red Sea to Damascus, to the boundaries of Idumaea and Palestine on the west and far down into Arabia on the east. The Jabal Druze the Nabataeans held in the 1st century B.C. Finally Trajan annexed their western territory in A.D. 115 and formed Provincia Arabia with its capital at Bosra, a few kilometres north of Umm el-Jamal. Rabel II, the last king of Nabatene, died there in exile.

The Nabataeans had a distinct civilization, a blend of Hellenism and their own native culture, which produced Petra, the towns and fortresses north along the western edge of the desert, and the monuments of the Jabal Druze.

Water was supplied to the town from the western wadi which rises in the northern mountain fed by rain and snow. In it, to the north, was built a barrage from which a covered masonry canal ran obliquely to the northwest corner of the town ; along the north side, outside the wall, and down the eastern side to the southeast corner, with branches leading off it to fill interior reservoirs. As in villages and towns today in the highlands water was collected once a year and that sufficed.

The air plan (PLATE I) shows the town as a rough parallelogram from south to north, about 800 metres long, and from 300 to 500 metres wide, lying on a featureless plain with a dry wadi to the west. Buildings are grouped in compact masses, east, west and north and a scattered group lies like a spine down the middle. Around the buildings the ground is divided into a crazy pattern of enclosures ; some ancient, others made by the Rowallah Bedouin who pass this way each spring on their migration northwards with their herds of breeding camels, and use the whole ruin as a khan, camping alongside whilst water and fodder last.

The external face of each quarter or block of buildings forms a defensive wall. Where buildings did not exist a wall without bastions or towers joins on to the next block and so from block to block forming an irregular enclosure. On the west is the Gate of Commodus, dated A.D. 176 (PLATE II). In the centre of the south wall, between two small towers, is another ; whilst further west, near the corner, is another in the middle of the houses. One has been noted at the north end of the block on the east side and two more to the north. The modern Caucasian villages of Sukhni and Zirka to the south, on the edge of the desert, have or had the same arrangement on a smaller scale ;

## ANTIQUITY

houses packed close together around the perimeter, leaving the centre more or less free and open, thus forming a defensive enclosure against desert raids. The same seems to have been the origin of the defences of this place, to make it proof against surprise but not against military operations. This applies to the walls of the 1st century A.D. at Jerash also, though these are more solid and bastioned.

Many churches, houses and two civil buildings have been noted ; the 'Praetorium' dated A.D. 371 (see PLATE II) at the northeast angle of the west block of houses ; and the 'Barrack', dated A.D. 412, a large freestanding building built around a court, with a chapel projecting from the east wall and a tower on the southeast corner (PLATES III and IV).

Basalt was the sole structural material. Girder arches, corbelling and the employment of great slabs for floor and roof, showing all the principal details that were developed in this intractable material and used throughout southern Syria, are exemplified in a hundred different buildings. These peculiar methods of construction, developed from the working character of the material, appear first in the architecture of the Nabataeans. At Petra girder arches were employed in the 1st century B.C. Masonry shows skilled workmanship and a developed technique to suit the material. Carved ornament is absent and no trace of foreign craftsmen can be remarked.

The thrust of arches was taken by interior buttresses, and a peculiar system of corbelling developed, in which two or three rows of corbels project from the walls with long slabs resting on the tips of the upper row to form floors and roofs. Buildings internally and externally were covered with coatings of stucco, finished with a polished surface on wall, ceiling and floor, hiding structural features and turning the ugly stretch of corbelling into an elegant cove. Doors and window shutters were of basalt. The tradition persisted and appears in the medieval castle of Azrak ; whilst other of the structural inventions of the Nabataeans are employed in the body of that castle.

Large tall houses built round courts are in a majority, half the house consisting of two wide high-arched rooms superimposed in two storeys ; and in the rear four storeys of narrow rooms, flat roofed and floored with slabs of stone on the cantilever principle. Ornament was meagre and only in the 'Praetorium' was an order employed. In plan, this is a combination of a Roman and oriental house. Recognizable are the reused remains of two Nabataean temples and large numbers of inscribed stelae from destroyed Nabataean tombs. The majority of the later inscriptions are in Latin and Greek, but the classic art that



## UMM EL-JAMAL

flourished in the rest of Syria under the Roman Empire had little visible influence. Under later political and Christian religious influences Greek and Roman personal names were adopted.

The fifteen ecclesiastical monuments follow two main types—halls and basilicas—with considerable variety in plan and structure. Some hall-churches are long and narrow with girder arches to carry the flat roofs. Others are nearly square in plan and have a single arch. The bema is sometimes square, sometimes apsidal, with the curve showing outside ; sometimes concealed by two small projecting aisle rooms. The two types of apses appear also in basilicas. If square piers carry the nave arcades then they are more widely spaced than when pillars are employed. If the nave is narrow then all the walls are brought up to one level and roofed with slabs. If a clerestory is used the aisles are roofed with stone and the nave with wood. Apses have semi-domes but none remains standing. Many of the churches are connected with buildings and presumably were monastic.

Two churches only are dated ; that of Julianos, A.D. 345 (PLATE II) is notable as the earliest church in the world with a dated inscription. It is of the hall type, long and narrow in plan, with a projecting apse ; nine transverse girder arches rise from slightly projecting wall piers to carry the flat roof. The apse had a semi-dome. Every alternate bay was pierced by a square window set high up in the wall. On the north side are rooms with three doors opening into the body of the church. On the south is a court surrounded by buildings and a portico runs the length of the south wall, from which three doors open into the church ; there being no direct entry to the church except through buildings. The 4th century church at Jerash has a similar arrangement of doors and it is considered there that they were for the use of the catechumens. The present custom of the Orthodox Church in separating the sexes inside the church is to group the women on the north.

A large church, conveniently called the 'Cathedral', of the basilican type, lying alone northeast of the 'Praetorium', is dated 557. It has an apse squared off on the outside by two small aisle rooms. A narrow west porch covers the three doors. It is not remarkable in plan and is a typical basilica without the western atrium that nearly all the churches at Jerash have. There is a time-lag ecclesiastically between the two places in planning. Prothesis and diaconicon appear at Jerash in the 6th century in response to Conciliar doctrinal enactments which were expressed in public worship by an elaboration of ceremonial and brought about alterations in plan and structure.

## ANTIQUITY

The 'West Church' (see PLATE II), one of the largest and best preserved of the churches of Umm el-Jamal, is just outside the west wall south of and adjoining the west gate (Commodus). It has its own enclosure joined on to the town wall, and is a basilica of four bays, the arcades carried on square piers with an apse and aisle rooms squared off on the outside. At the west end two towers project at the ends of the aisles, joined by an arch to form a porch covering the single door to the nave. The aisles have doors in the second western bays. These are roofed by corbelling and the arcade walls are carried up to form a clerestory, pierced with a square window in each bay, and the roof was of wood. The nave floor was of mosaic in four colours, of a simple pattern.

In plan and elevation this church is foreign to the region and conforms to structures common in the north of Syria. It may have been a monument to the fierce religious conflicts that tore the Church in Syria in the 5th and 6th centuries and so excluded from the body of the town for nonconformity.

The basalt architecture of the Jabal Druze (Hauran) has, owing to the reoccupation of the mountain by the Druzes, largely disappeared. Umm el-Jamal, from the fact of its desertion in the 7th or 8th centuries until today, has escaped occupational disasters and remains a collection of ecclesiastical, civil and domestic monuments of many ages, remarkable for their extraordinary state of preservation.

Howard Crosby Butler in his publications of the Princeton University Archaeological Expeditions in Syria in 1904-5 and 1909, (Division II, Ancient Architecture in Syria, section A, Southern Syria, Part III, Umm idj Djimal), has published the fullest account of the ruins and this has largely supplied the basis for the forgoing article.





PLATE I



ISTANBUL: THE LAST TOWER ON THE SEA OF MARMARA (also first of the land-wall)  
*ph.* Gerhard Bersu

# The City-Walls of Istanbul

by ALFONS MARIA SCHNEIDER\*

‘**C**ONSTANTINOPLE is a precious key, worth a whole kingdom ; its possessor will be master of the world’. Napoleon’s prophecy might equally have been made by Constantine himself, the founder of the city. For the chequered history of the Byzantine Empire shows that more than once the mere possession of Constantinople stood between it and destruction. Yet the city’s impregnability did not depend solely on its Roman heritage and its peerless geographical and political position, but owed as great a debt to the genius of the younger Theodosius in constructing an enceinte which, apart from St. Sophia, is today the most impressive monument of the vanished Byzantine power.

Hitherto the only satisfactory account of the walls has been that of A. Van Millingen.<sup>1</sup> Naturally his book—more particularly as concerns their architectural history—cannot solve all the problems which interest us today. It was for this reason, and also because every year the structure becomes less and less secure, that H. Lietzmann initiated in 1928 an elaborate survey with the aid of the *Notgemeinschaft der Deutschen Wissenschaft*: this was continued in the succeeding years by the Istanbul section of the Archaeological Institute of the German Reich, and publication of the final results is now approaching completion.<sup>2</sup>

When Constantine the Great solemnly dedicated his capital on 11 May 330, the city area, four times the size of the Byzantium of Severus, was far from being completely populated. But in the second half of the century the population began to increase so rapidly owing to immigration that by 384 Themistius, the *praefectus praetorio*, could state in a eulogy on the Emperor Theodosius that ‘a new city wall

---

\* Translated by Professor R. G. Austin.

<sup>1</sup> *Byzantine Constantinople : the walls of the City and adjoining historical sites*. London, 1899.

<sup>2</sup> H. Lietzmann, *Die Landmauer von Konstantinopel. Vorbericht über die Aufnahme im Herbst 1928*. (Abhandlungen der Akademie Berlin, 1929). Schneider-Meyer, *Die Landmauer von Konstantinopel. Zweiter Vorbericht*. (Sitzungsberichte der Akademie Berlin, 1933).

## ANTIQUITY

would probably become necessary next year ' (*Oratio* 18). Yet the project took a long time to mature, and it was not until 412-13, when the Illyrian invaders began seriously to threaten the capital, that the building was put in hand at the instance of the regent Anthemius. The structure was certainly more or less complete by 422 ; a decree of the Codex Theodosianus, dating from that year (vii, 8, 13) assigns the lower storeys of the towers as quarters for military authorities passing through the city. Finally, in 439 the Emperor authorized the building of a connecting wall between the land-fortification and the sea-walls built by Constantine, probably owing to pressure from the robber bands of the Vandal fleet. This undertaking was completed by the Prefect Cyrus of Panopolis.

The stretch of wall leading from the Sea of Marmara to the Golden Horn is about 6.5 kilometres long. Beginning with a marble-covered ornamental tower, it runs from the sea north-eastward as far as the Golden Gate,<sup>3</sup> which stands some 14 metres above sea-level. Thence it goes due northwards as far as Mevlevi hane Kapu (Rhesium gate), at a height of 54 metres, and there takes another sharp bend north-eastwards; from here the ground rises to 68 metres at Top Kapu (St. Romanus gate), then falls to 35 metres in the Lycus valley, and afterwards climbs again to 76 metres at Edirne Kapu (Charsius gate). The part of the wall from Top Kapu to Edirne Kapu is the most liable to danger, firstly because of the lie of the land, and secondly because the stretch immediately south of it projects considerably, so that it offers the most convenient point for a frontal attack. In fact it was here that all the chief attempts on the city known to history were launched, without success however, until 1453. From Edirne Kapu the ground falls to a level of 60 metres at Tekfur Saray ; at this point the wall makes a pronounced bend westwards, runs along the slope of a deeply indented valley, and finally descends to the plain at the Golden Horn, at the so-called Tower of Anemas. But the wall proper of Theodosius stretches only from the Sea of Marmara to Tekfur Saray. There it joined the already existing circumvallation of Blachernae, which, as the 14th region, lay outside Constantine's city and therefore possessed its own wall. Only a few remains of this wall are still visible—I have established the identity of one piece of it, in excellent condition, in the so-called prison of Anemas—because in the 12th century the quarter was enlarged and a new wall constructed.

---

<sup>3</sup> Plan of the walls, with the names of the gates, in A. M. Schneider, *Byzanz* (Istanbuler Forschungen 8, Berlin, 1936). Topographical map.





THE WALLS OF ISTANBUL

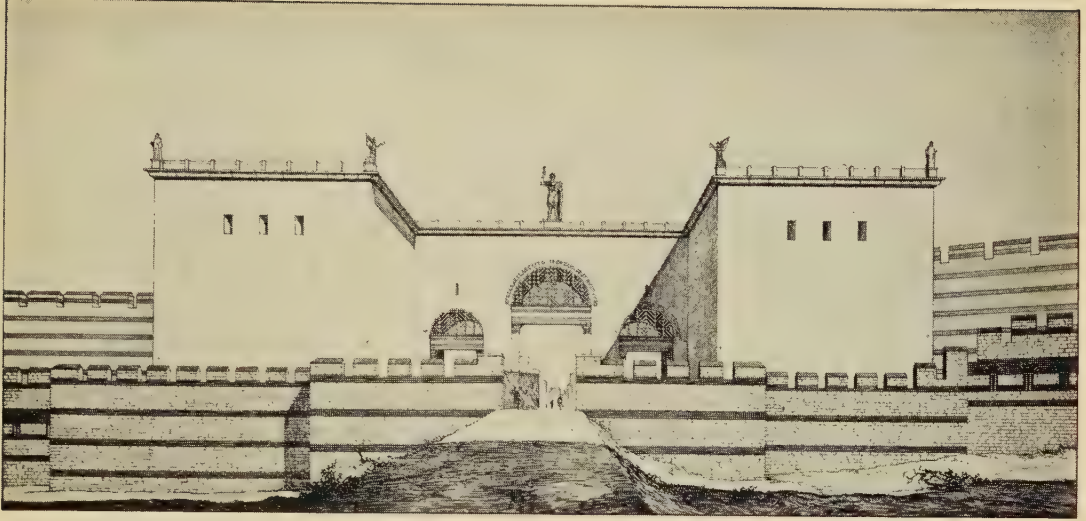
## ANTIQUITY

The land-fortification of Theodosius consists of a main or inner wall (τὸ μέγα τεῖχος) 4.8 m. thick and 11 m. high, with towers at intervals of 50–70 m. At a distance of 14.5 m. is built the προτείχισμα or outer wall, 8 m. high and protected by towers ; 12–15 m. in front of this is a moat (τάρφος) 18 m. broad and about 7 m. deep. The main objective of every ancient fortified position was to prevent the enemy from being able to move up his heavy artillery too near the wall : this aim is effected by pushing forward the lines of defence. Philon of Byzantium (3rd century B.C.) advises that three moats of prescribed breadth should be made in front of the main wall, so that the first line of defence lies some 160 metres from it, and therefore even the best artillery is rendered ineffective. But at Constantinople the main wall and the outer edge of the moat are separated by about 55 metres only. This sufficed, because at that date the efficiency of artillery had considerably declined. On the other hand, the erection of the outer wall and the arrangement of each of the three lines of defence one above the other compensated for the closer concentration of the position. This powerful strengthening of the fortification was needed because of the poor fighting qualities of the army : the material solidity of the architecture had to make up for what the troops lacked in spirit.

This system is fundamentally nothing more than the method of defence particularly recommended by Philon (v. 83.44, 85.22 ed. Schöne), only with a different distribution of forces—the outer work was constructed in the form of an actual wall, and then the main wall was correspondingly heightened. Thus the whole is not only very skilfully arranged and impregnable in the circumstances then obtaining, but also, through its very simplicity, a work of impressive weight and beauty.

The main wall, as prescribed by Philon, is 4.80 m. thick, and its foundation is built down on to the cliff : it was topped with a parapet and battlements. Its general course is straight, but at one point only, between Siliври and Mevlevi hane Kapu, it forms a sigma-shaped bend. The rectangular or polygonal towers (of which there are 96, and another 19 on the wall of Comnenus) are, on the Hellenistic pattern, not built into the wall. Only the upper story was intended for defence-purposes, as well as the tower-platform. On the north side of the main wall, and also of the outer wall, there are many gateways through which a sortie could be made : unfortunately the condition of the walls is too ruinous for their number to be ascertained. The outer wall is only 3.2 m. thick, not of massive construction but broken up into casemates with embrasures ; these casemates could be entered from the level ground.

PLATE II



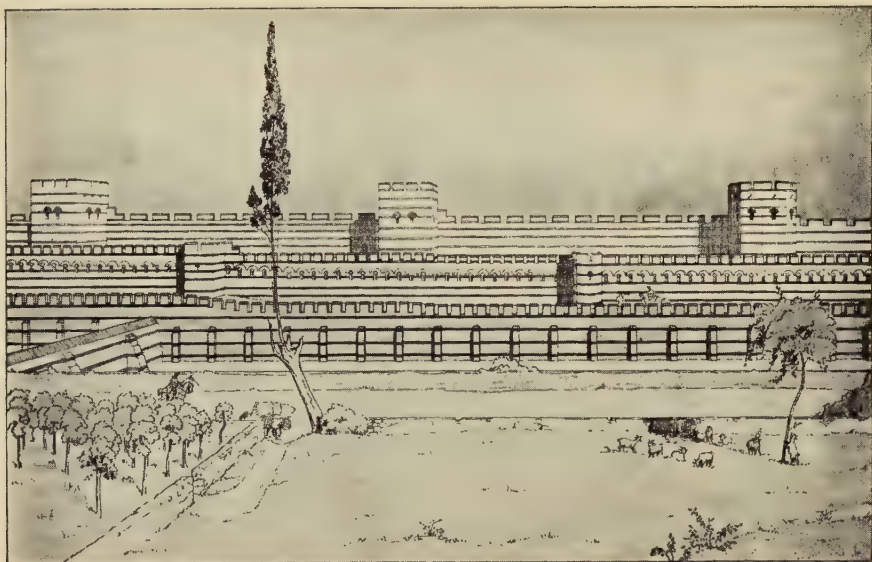
ISTANBUL: RESTORATION OF THE GOLDEN GATE  
*after Meyer, Danzig*



ISTANBUL: THE GOLDEN GATE AS IT IS NOW  
*ph. Messbildanstalt, Berlin*



PLATE III

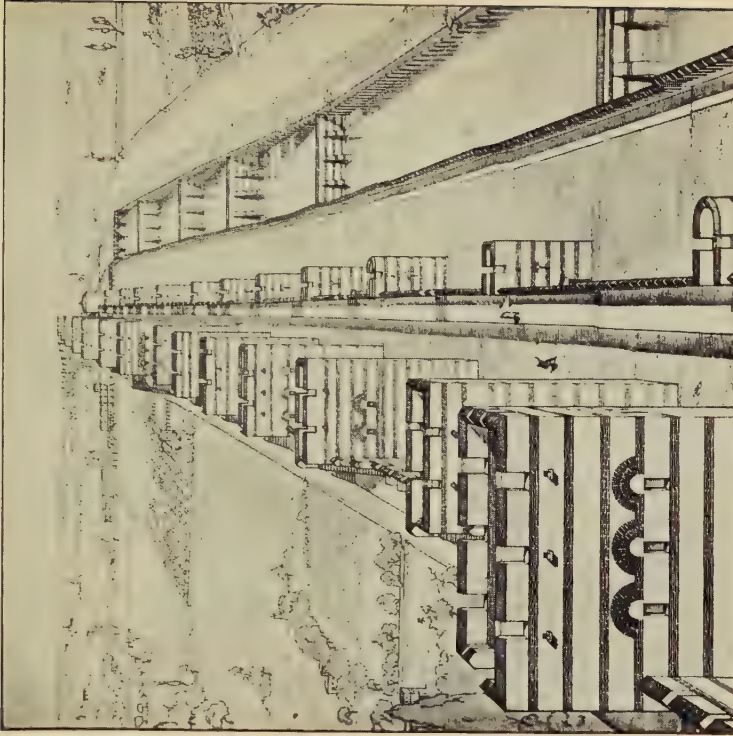


ISTANBUL: RECONSTRUCTION OF THE FIRST WALL  
*after* Krischen, Danzig

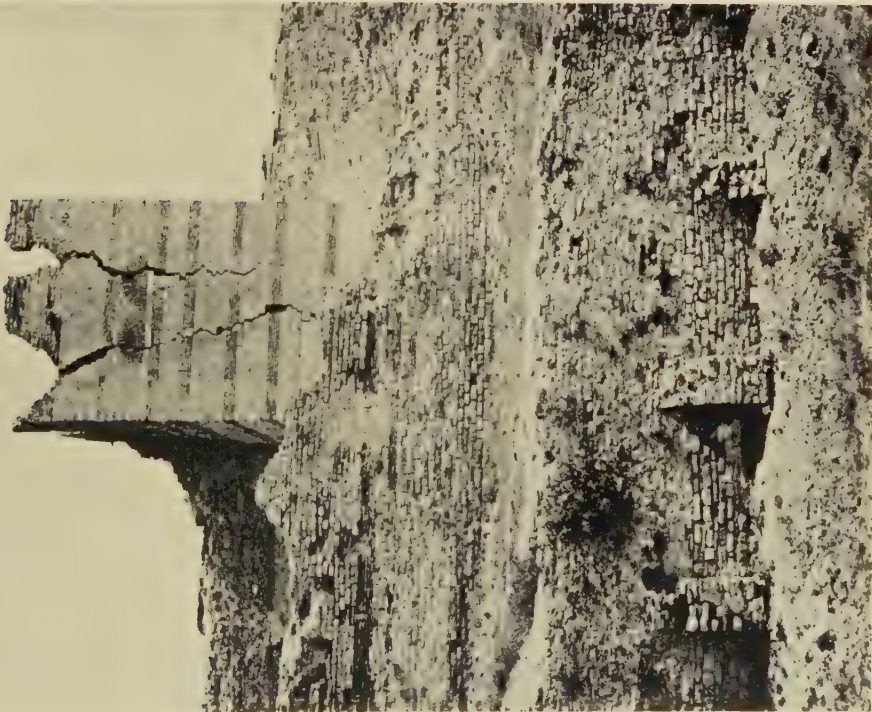


ISTANBUL: ACTUAL STATE OF THE WALL  
*ph.* Messbildanstalt, Berlin

# PLATE IV



ISTANBUL: RECONSTRUCTION OF THE FIRST WALL FROM  
LYCUS VALLEY TO THE GATE OF ROMANUS  
*after* Krütschen, Danzig



ISTANBUL: VIEW OF WALL SHOWING THREE COMPONENT PARTS  
*ph.* Messbildanstalt, Berlin





ISTANBUL WALL OF COMNENUS, TOWERS 1-3 *ph.* Gerhard Bersu



ISTANBUL WALL OF COMNENUS, TOWERS 7-9 *ph.* Gerhard Bersu



## THE CITY-WALLS OF ISTANBUL

The gates (7 main and 4 subsidiary) are generally flanked by two towers ; the ' golden gate ' (PLATE II), through which the victorious emperor entered the city, was made of marble. A much-discussed problem is caused by the moat with its sluices : was it filled with water or not ? The following points are worth noticing. The sluices are always supported by struts on the outfall or deeper side, which would be superfluous had not the sluice-walls to bear a heavier pressure there. Since, as described above, the course of the wall lies over undulating country, the sluices at the deeper points must necessarily also have supported a greater pressure of water, so that the struts are appropriate. Further, we discovered in the sluice at tower 63 a clay overflow-pipe, which shows that the sluices were intended as dams. In my opinion they served a double purpose : first, in times of excessive rain they prevented the water from the higher ground flowing down into the deepest portions of the Lycus valley, and there destroying the wall, as actually once happened during bad weather. Secondly, in war-time the sluices could be filled with water at critical points so as to make it difficult for the enemy to cross the moat ; but in peace the moat was probably left dry. The walls show a peculiar technique which was not known in the East until the late Roman period : sections of five or more layers of brick alternate with a casing of masonry. The only precedent with which I am familiar is the wall of Nicaea, built by Claudius Gothicus in 269. Probably this method came to the East from Gaul, for it is there that we find the earliest and most frequent examples of it. As a defensive work the wall of Theodosius has really no parallel in late Roman times ; so that as far as I can see, this type of fortification, consisting of a moat and two walls raised in tiers above one another, appears for the first time at Constantinople. However, we must remember that the art of fortification was then at its zenith, and that therefore a brilliant engineer, as the architect of the wall of Theodosius undoubtedly was, could arrive at this innovation only from practical considerations. But it seems to me quite likely that Hellenistic influence may be traced here, for it is certainly remarkable how completely the rules of Hellenistic architects have been carried into practice. This conjecture is the more probable as it was precisely in the 5th-6th centuries that a predilection was shown for transcribing the works of Hellenistic tacticians ; though it is true that the lore thus served up again was in general entirely that of bookmen and never of practical value, a thing which especially strikes us in Vegetius. But once, as suggested by the wall of Theodosius, it may have borne practical fruit.

## ANTIQUITY

We are on firmer ground in considering briefly the influence which the walls of the main city exercised in later times. We may mention here Adalia and Nicaea, whose late Roman fortification was in the middle ages surrounded with outer walls, and the 'triple-walled' Armenian fortification of Mantzikert, which probably also shows the influence of Constantinople. But a particularly striking parallel is to be found at Ani, the Armenian residence of the Bagratids, which on two sides is protected by deep defiles, while only one side is easily accessible from the plain. This unprotected side shows a raised main wall and a lower outer wall ; a moat may have been there, but no trace of it has yet been found. However, Byzantium formed a precedent not only for the East, but also for Norman fortified works.

The massive nature and technical perfection of the new wall made the city practically impregnable, provided always that the structure was kept in good repair. So that we constantly hear of renovation-work necessitated by the ravages of time, and in particular owing to earthquakes. The first great catastrophe of the sort occurred in the autumn of 447, while Theodosius himself was still alive ; it resulted in the destruction of 57 towers. Attila was close at hand, and speedy rebuilding was essential ; in fact the prefect Constantine got the necessary work done in the incredibly short space of 60 days. The earthquake of 16 August 554 damaged the walls near the Golden Gate, and three years later, on 6 December, fresh shocks occurred, especially affecting the stretch between the Rhesium Gate and the Golden Gate. It is with this disaster that we should probably connect the inscription of Justin and Sophia at Mevlevi hane Kapu, referring to a reconditioning of the outer wall, for according to Procopius no further repairs of the walls took place during the later years of Justinian's reign. In 626 the city was fiercely but unsuccessfully attacked by the Avars, in alliance with the Persians. An inscription of Justinian II (beginning of the eighth century) shows that the subsidiary gate south of the sigma-shaped bend was restored. In 713 the ever-increasing danger from the Arabs caused Anastasius II to recondition the city walls, and in particular to equip the shot-storeys of the towers with artillery-pieces. The necessity of these measures soon became clear, for in 717-18 the city was invested on all sides by Maslamah, but the attack was brilliantly beaten off by Leo III and the culture of Europe was thus saved from the Arab invaders.

On 26 October 740, an earthquake caused extensive damage. The emperor immediately put restoration work in hand, and levied a special tax for it : a series of inscriptions refers to this (on towers 5, 7,

## THE CITY-WALLS OF ISTANBUL

18, 19, 25, 34, 37, 45, 47, 48, 55, 56). Under Theophilus (829-42) work was confined to the towers by the Blachernae gate and to the sea-walls. The next catastrophe of magnitude happened in the tenth century, in the earthquakes of 25 October 986, and 9 January 987, when the dome of St. Sophia was destroyed, together with many churches and buildings as well as some of the towers on the walls. Two inscriptions of Basil and Constantine (towers 1 and 36) probably refer to this.

The enlarged wall of Blachernae (the wall of Comnenus, PLATE V) dates from the second half of the twelfth century, stretching from Tekfur Saray to the Blachernae gate. The emperor Manuel caused further reconditioning at various points in the walls, but clearly did not complete the work, for again in 1197 Alexius III had the Charsius gate entirely restored, repairing damage already long neglected, according to the text of an inscription which now only survives in a literary source. Under the Latin emperors (1204-1261) practically no work can have been done on the walls. Michael VIII, immediately after his victory in 1261, had the city walls raised in height, probably restoring the battlements. His successor, Andronicus II (1282-1328) undertook a thorough renovation of the wall, and there is still extant at least a copy of an inscription of 1286 referring to this. Gold coins of both emperors, representing the Virgin encircled by a crown of city walls, were probably coined to commemorate this work. Violent earthquakes occurred in the autumn of 1344, but their ravages were quickly made good by Apocaucos, and the opportunity was taken to add a parapet and battlements to the moat. Further damage was done by the earthquake of the spring of 1354.

Politically, the position of the Byzantine city was becoming more and more unstable. In 1422 the Turks had besieged it, though without success, and their growing power might well cause a wide-spread feeling of a crisis in the immediate future; as far as was possible with limited means, preparations were made to meet it. The chief measure taken was the renovation of the outer-wall; dated inscriptions inform us of the progress of the work, the earliest of those preserved being from Mevlevi hane Kapu. The first dates from 1433, others from 1438, 1440, 1441, 1444, and the last from 1448 (from a tower near the Sea of Marmara). In 1453, when Sultan Mehmed began to invest the city, the advance-works were in good condition—not so, however, the main wall, and although the worst parts could certainly be soon patched up not much trust was now placed in it, the defenders relying entirely on the strength of the advance-wall. On the fourth day after



## ANTIQUITY

the city had been taken by storm, Mehmed ceremonially took possession of it, and the history of the walls entered a new phase. Under the new régime, the conqueror ordered the walls destroyed during the siege to be immediately repaired. This was the more necessary, as he could not foresee the results likely to follow in the West from the loss of the eastern outpost of European culture, and whether he would have to defend his spoils after having won them.

I must pass over here the later history of the walls, and the damage caused by the earthquakes of 1509, 1690, 1754 and 1766. The last extensive repairs were done under Ahmet II. At the end of the eighteenth century Dallaway, the author of the first detailed account of the walls (*Archaeologia* (1803), XIV, 233 ff) found that several towers were ruinous and that the moat had been turned into fields for the cultivation of melons and tobacco. From this time onwards began the uncontrollable and irremediable collapse of this gigantic defence-work, which had shattered the assaults of the migrating peoples, the armies of the Kalifs, the ill-disciplined predatory hordes of the Slavs, Bulgars, and Russians. Yet still, notwithstanding its present state of decay, it bears eloquent witness to the awe-inspiring might and brilliant glory of an empire which for a thousand years protected culture, art and beauty, and had preserved them through the Dark Ages for the dawn of a new day.

### NOTE

We wish to thank Herr Direktor Schede, of the German Archaeological Institute, for most kindly allowing reproductions of the hitherto unpublished restorations on PLATES II, III and IV; and Dr Gerhard Bersu for his help in supplying the other illustrations, some of which are from his own photographs.—EDITORS.

## Notes and News

### THE VINE-SCROLL IN SCOTLAND (PLATES I-IV)

Readers of Dr KITZINGER's recent article (*ANTIQUITY*, 1936, x, 61-71) will have appreciated the importance of the vine-scroll motive in Anglian sculpture. It was of foreign origin even in England, and its occurrence in Scotland is therefore doubly exotic. This fact was recognized long ago (in 1903) by Romilly Allen, to whose magnificent and astonishingly complete corpus (*Early Christian monuments of Scotland*) every subsequent student must be deeply indebted. 'Foliage', he writes (p. 236), 'was essentially a non-Celtic motive in decorative art; and wherever it occurs in Ireland, Scotland or Wales, its presence must have been due directly to Northumbrian, or indirectly to Italo-Byzantine, influence'. Today we should express the same opinion, but in slightly different words. We should say that the Scottish monuments with foliage were all made under the influence of the Northumbrian or Anglian school of sculptors; that the foliage-designs can in every instance be regarded as vine-scrolls, or as derived from vine-scrolls; and that they originated somewhere in the eastern Mediterranean.

There are two distinct groups of carved crosses with vine-scrolls in Scotland. The southern group is confined to the region south of the Forth, with a single possible exception at St. Andrews, Fife. It consists of fragments from Abercorn, the seat of an Anglian bishopric in the 7th century (though the crosses are probably later), from Aberlady, Morham, Jedburgh; and of an important sub-group round Hoddum (Kentigern's earlier centre) where many fragments of Anglian character have been found, and are still preserved in a wine-cellar at the castle there, where I photographed them in 1936. With this whole southern group, whose masterpiece of course is at Ruthwell, I am not now directly concerned.

North of the Forth are several crosses, cross-slabs or fragments on which designs ultimately derived from the Northumbrian vine-scroll have been observed. The most remarkable instances occur at two adjacent places in the peninsula between Dornoch Firth and Nigg Bay, Ross-shire, namely, at Hilton of Cadboll and at Tarbat. Both examples are now safely preserved in the National Museum at Edinburgh. Round the margin of the Hilton slab (PLATE I) is a design

## ANTIQUITY

consisting of a vine-stem with branching spirals and grapes, in which are set fantastic birds (derived originally from peacocks, as their tails show), sometimes eating the grapes. On the central portion are carved some of the well-known Pictish symbols ; and the lower panel has a spirited hunting scene. The whole carving is admirably executed ; it is a work of real beauty, with its well-balanced designs, and is the work of a genuine artist. The Tarbat fragment is similar, but it is much worn. The general design seems to have been the same, and may have been made by the same sculptor. It is to be observed that the vine has become attenuated and the bunches of grapes are highly conventionalized.

The nearest parallel is to be found on a fragment from St. Peter's, York (PLATE II), now preserved in the Hospitium there. (The parallelism was observed by the present writer before he discovered that it had also been noticed by Romilly Allen, who noted that it was 'a Northumbrian variant of the classical vine-scroll, modified by Byzantine influence'). This fragment was described by the late Mr W. G. Collingwood as 'an example of the latest stage of good Anglian art', and he put it in his Period A3, which he regarded as pre-Danish (*Yorkshire Arch. Journal*, xx, 161). In his book (*Northumbrian Crosses*, 1927) he attributed it, in the index, to the early 10th century. The dates thus given to it differ considerably, but suggest that the York monument falls within the period 800-950. The resemblance between the York example and the two Scottish ones is so close that they may well be contemporary. This would mean that the Hilton slab cannot be earlier than the 9th century.

On the cross at Forres (which I have not seen) there appears to be some ornament, on one of the sides, reminiscent of foliage-scrolls. This is the monument usually described as Sueno's stone ; it has no Pictish symbols on it, and for this reason a late date is probable (Stuart, *Sculptured Stones*, I, plate 21). It is described by Romilly Allen (*op. cit.*, p. 151), who does not illustrate it, as 'foliage or beasts interlaced, much worn'.

There is a somewhat parallel design on the side of the Mugdrum slab (Stuart, I, plate 52) described by Romilly Allen (*ib. id.* p. 367) as 'scroll foliage with winged dragons in the scrolls'. It has no Pictish symbols.

The bunches of grapes, which began as proper bunches, degenerate into three round balls ; and the foliage-spirals become mere curving lines. The leaves, never very vine-like, tend to become narrow and to resemble those on 'Samian' pottery and Roman inscribed stones. It



## NOTES AND NEWS

is possible that these Roman relics may even have suggested them. There may have been some carved Roman stones still visible, at any rate in northern England, at the time when the crosses were made. The rosette, which is quite common on the crosses, especially in the vine-scrolls, was carved on the upper portion of some of the Roman stones, and may have been used also on buildings.

It is interesting to compare two vine-scrolls, one from the Anglian region of Aberlady (PLATE III) and the other the well-known Drosten stone from St. Vigean (PLATE IV), near Arbroath, Angus. The Aberlady stone (now at Carlowrie House near Edinburgh) has bunches with six or seven grapes, and the tendrils end in two or three pointed leaves. The Drosten grapes are the conventional three and there is but a single leaf awkwardly attached. There is an inscription (which has never been examined by a palaeographer) reading DROSTEN IPE UORET ETT FORCUS. The names all occur in the Pictish king-lists (if UORET may be equated with WROID, which is doubtful). But there is no assurance that the Drosten here commemorated was a Pictish king. If he was, the only one who seems to be chronologically suitable is the third, Drust, son of Constantine, whose dates are given by Anderson (*Early Sources*, p. cxiii) as about 834-6. There was another Drust about 780 and yet another who reigned from 724-6. The Drosten stone has a cross on one face, covered with interlacing ornament, and on the other several Pictish symbols, together with the eagle and fish, a hooded bowman, a boar, deer and several other animals.

On the west side of the cross-slab opposite the post-office in Crieff, Perthshire, is a confused design with three-berried bunches. The combination of scroll-work with an angular design occurs on the side of a fragment from Dacre, Cumberland, dated by Collingwood 'perhaps not more than a hundred years after Bede' (p. 47), that is, early 9th century; but the execution of the design on the face is far superior to anything on the Crieff cross.

Scrolls without leafage occur on cross-slabs at Aberlemno, Angus (*Early Chr. Mons.* p. 211), Abernethy (*ib. id.* p. 312), and on the cross at Dupplin, Perthshire. These scrolls have a distant resemblance to that on an Anglian cross at Ilkley, Yorks, placed by Collingwood 'at the end of the Anglian period proper', probably during 'the years immediately before 867' (p. 50).

The evidence of date is almost purely stylistic and therefore to be accepted with great caution; but it is consistent in suggesting the ninth century as the approximate period of all these Scottish examples.



DISTRIBUTION-MAP OF THE VINE-SCROLL ON CROSSES AND CROSS-SLABS IN SCOTLAND,  
NORTH OF THE FORTH



VINE-SCROLL ON HILTON OF CADBOLL STONE (see p. 469)  
*ph.* National Museum, Edinburgh



PLATE II



FRAGMENT OF CROSS-SHAFT FROM ST. PETER'S, YORK (*see* p. 470)  
*ph.* York Museum



FRAGMENT OF CROSS-SHAFT FROM ABERLADY, NOW AT CARLOWRIE HOUSE, NEAR EDINBURGH

(see p. 471)

ph. O. G. S. Crawford

PLATE IV



CROSS-SHAFT FROM ST. VIGEANS, ANGUS (*see* p. 471)  
*ph.* National Museum, Edinburgh



## NOTES AND NEWS

History records only two dates that bear at all on the problem. The first is the request of Naitan, king of the Picts, to Ceolfrid, abbot of Wearmouth and Jarrow, for architects who could build in his kingdom a stone church after the fashion of the Romans, together with certain information that would enable him to confute the priests of the Columban church. This occurred about the year 710. (Naitan was king from 706 to 724 and again, after an interval, from 728 to 729, according to Anderson's dating). The architects were sent, together with a long and uninteresting epistle, which Bede quotes in full (Book 5, §21) and which he may have composed himself. No remains of their handiwork are known to have survived; but it is reasonable to infer that, just as the importation of architects by Benedict Biscop in the 7th century led ultimately to the foundation of the Anglian school of carving itself, so the Anglian architects may have performed a similar function for Pictland. But the stylistic resemblances of our vine-scrolls are all to monuments in the *latest* Anglian style, so that we cannot attribute any of them directly to the influence of Ceolfrid's architects.

The other pertinent date is the year 843, which is approximately that of the union of the kingdoms of the Picts and Scots under Kenneth Macalpin. It seems not unlikely that an event of this kind might produce just that environment in which such a stone-carving style, already perhaps potentially present, might develop. But attempts to equate political and cultural activities are notoriously dangerous.

For the present we must be content to accept the period 800-1000, long ago suggested by Anderson, as still the best for the crosses and cross-slabs of eastern Scotland.

Finally, attention must be drawn to the significant distribution of the vine-scrolls (map, p. 472). Nearly every example is from a place on or very near the coast, the only exception being Crieff. That is what one would expect. The coastal regions were those which were most easily reached from the south, and where Northumbrian influence would most readily be felt. The concentration round the mouth of the Tay is striking, and suggests a date when Scone, Abernethy, and Forteviot were of more importance than the other centres further north.

I wish to thank the authorities of the National Museum, Edinburgh, for permission to publish photographs of the Hilton of Cadboll stone; and my warmest thanks to Mr A. J. H. Edwards, of that Museum, for the trouble he has taken to secure good photographs; also to Dr Collinge of the York Museum for the photograph of the cross-fragment from St. Peter's, York.

O.G.S.C.

## ANTIQUITY

### PLACE-NAMES, SCOTLAND

The following abstract formed part of a paper on the Study of Place-names in Scotland read by Dr A. MACDONALD, of Edinburgh, at the Congress of the International Association for European Folk-Lore and Ethnology held in Edinburgh last July. Lack of space prevents printing the complete paper.

'The first germ of Scottish place-name study, as far as I am aware, was the publication, in 1885, by that veteran of letters Sir Herbert Maxwell of Monreith, of *Studies in the Topography of Galloway*. This was followed by a series of articles on the place-names of Argyll, contributed to *The Scotsman* in 1887 by the late Professor MacKinnon, of the Chair of Celtic in the University of Edinburgh. Since then there have appeared numerous studies of particular districts—counties, parishes, glens—as well as more ambitious works covering the whole country. These studies include Professor W. J. Watson's *Place-Names of Ross and Cromarty* (1904), E. C. Ellice's *Place-Names in Glengarry and Glengquoich* (1898), A. R. Forbes's *Place-Names of Skye* (1923), James Macdonald's *Place-Names of West Aberdeenshire* (1898), H. C. Gillies' *Place-Names of Argyll* (1906), W. J. N. Liddall's *Place-Names of Fife and Kinross* (1896), and Sir Herbert Maxwell's *Place-Names of Galloway* (1930). These works—not by any means a complete list—come under my heading of particular districts; and there have also been numerous articles, on parishes mainly, published in the *Proceedings* of the Gaelic Society of Inverness, the *Scottish Geographical Magazine*, and the *Celtic Review*. Of general studies we have such works as Sir Herbert Maxwell's *Scottish Land-Names* (1894), the Rev. J. B. Johnston's *Place-Names of Scotland* (1st edn., 1892, 2nd edn., 1903, 3rd edn., 1934), Erskine Beveridge's *The "Abers" and "Invers" of Scotland* (1923) and Professor W. J. Watson's *The History of the Celtic Place-Names of Scotland* (1926).

'The main virtue which local works generally have is an intimate knowledge of the district under discussion, its place- and field-names, its legends, and its people. A proper use of such knowledge may atone for many faults; for instance, I know a certain farm to the east of which is a field called by the ploughman by the name of "Castle Field". There is no trace of any building there, nothing but a small mound and the vestigial remains of a ditch; yet that same ploughman could tell me that a bronze ornament had been turned up there some twenty years before; and the local gamekeeper added his item of information

## NOTES AND NEWS

by stating that the ruin labelled "Castle" on the Ordnance Survey maps, some quarter of a mile to the west, is nothing more than the ruins of an old farm building, which he remembered perfectly when still complete. In such a way may the local worker, however unsuited he may otherwise be for elucidating the meanings, bring his specialized knowledge to bear upon things of local interest, and may even succeed in confounding the expert cartographer or expert philologist.

'What must be done towards the better elucidation of the place-names of Scotland? Obviously the work of the local observer, who knows his district by heart, and can describe it, its people, its legends, even its geology, must be added to that of the expert in archaeology, in philology, and in palaeography. There is only one way in which this can be done, and that is by the establishment of a Scottish Place-Name Society. Is this possible? There is a Society in England which has published a number of volumes, each dealing with a county or section of a county. It has, of course, the help of a large number of voluntary workers, who send their material to a central clearing-station. It has some 800 subscribers, of which about one-quarter are Institutions, who contribute a minimum of 15s annually; it is not helped at all by a State grant. Can Scotland not do as well? Surely there are a thousand people with Scottish interests, who would be willing to support such a venture financially? I have no doubt that financial aid would be forthcoming from the Continent of Europe and the New World; but to my mind the main thing is that the people of Scotland should be interested, that a central body should be set up and the possibilities of my suggestion thoroughly investigated. Should it prove feasible—as I think—steps could then be taken to enlist the services of these indispensable local helpers, who would be willing to report on local names and traditions. Nothing that might prove of the slightest value should be neglected; field-names may prove extremely useful, for, as I know by experience, the names of old estates and farms may disappear, as estates and farms, but they almost invariably remain in the local memory as the names of fields.

'I do not claim this suggestion to be an original idea; it has been mooted previously, as for instance in 1934 a reviewer in *The Times Literary Supplement* concluded his remarks on a book on Scottish place-names thus: "The truth is that a satisfactory general book on Scots place-names is impossible till the whole of Scotland has been covered in a series of scholarly county volumes". Any attempt to do this would, I know, have the benefit of the advice of the Director of



## ANTIQUITY

the English Survey, Sir Allen Mawer, who would be glad to put his knowledge and experience at the disposal of a Scottish body ; and I have good reason for believing that the Ordnance Survey would be very sympathetically disposed. The method adopted by the English body, which is economical and simple, might with advantage be followed ; and indeed one of the three Lothians has already been covered in a thesis after the English model, and the other two are at present being studied by Edinburgh graduates. Nor is the material lacking. The Scottish History Society publications, as well as the publications of older societies like the Bannatyne Club, give us printed material ; the contents of H.M. General Register House and the National Library of Scotland are more and more at our disposal ; we have the invaluable aid of the work of Sir William Craigie and Dr Grant, which we may supplement with Joseph Wright's *English Dialect Dictionary* ; and we have for the use of Scottish students an increasing number of maps and plans, or copies of them, which are available as the result of a Committee founded a year ago for the preservation of old estate plans. We cannot tell what a detailed study of the place- and field-names of Scotland may bring to us. Apart from the fact that such study is in itself a liberal education, requiring considerable knowledge of all sides of Scotland and of Scottish life, it is the case that the work of the ethnologist, the historian, and the archaeologist must go unfinished without the help of the student of place-names. With that help we may throw light upon the sites of ancient battles, trace the movements of ancient peoples—we may even discover positively the identity of the Picts !'

### MESOLITHIC PIT-DWELLINGS (PLATES V-VI)

What must probably rank as the earliest group of artificial dwellings yet revealed by the spade in Britain has recently been investigated on the Corporation sewage farm at Farnham, Surrey. The site, which overhangs a permanent spring (PLATE V) of great antiquity, has for some years been a resort of collectors of flint implements, but it stands to the credit of Mr W. F. Rankine, of Badshot Lea, to have recognized that many of the flints derived from a group of loam-filled pits scooped out of the gravel. The existence of these pits was first suspected in 1929-30 through observation of surface colour-differences after ploughing. Trial sections cut in 1930 and in 1935<sup>1</sup> definitely proved that microliths and associated flint-work were to be found in the pits in fresh condition.

---

<sup>1</sup> W. F. Rankine, 'A Mesolithic Site at Farnham'. *Surrey Archaeological Collections*, 1936, XLIV, p. 24 ff.

## NOTES AND NEWS

During July and part of September of the present year excavations were carried out by the present writer with the co-operation of Mr Rankine and other friends, the financial support of the Trustees of the Percy Sladen Memorial Fund and the Surrey Archaeological Society, and the help and encouragement of the Corporation of Farnham. Only a small proportion of the site was explored, but this was stripped to the surface of the undisturbed gravel. Traces of a Belgic ditch and of a curved enclosure ditch of Roman-British age were the first features to be revealed, but in following the course of the latter it was found to cut into the filling of a 'pit-dwelling' or hut-foundation which proved to be of much greater antiquity. Subsequently two more of the early dwellings were revealed in plan, and the three were cleared of their contents.

The primary material recovered from the pits consisted of a homogeneous flint industry of Tardenoisian affinities, stone pebbles with battered extremities, vast quantities of 'crackled' flints, charcoal and yellow ochre. All of the worked flints from the pits have been retained and it is hoped to learn a great deal from a study of the technique employed to produce microliths, often of minute size, from the large nodules of flints utilized as raw material. The flint industry has not yet been studied in detail, but it compares with that collected from the surface in the Horsham district and elsewhere in Surrey and Sussex, mostly on the Lower Greensand. An idea of the richness of the industry from the pits can be conveyed by the statement that from pit II between 260-70 microliths and micro-burins were recovered, as well as angle-burins and scrapers and masses of cores and flakes, not to speak of over 1500 crackled flints of a certain size. The superiority of such closed finds from pit-dwellings over material collected (and selected !) from the surface does not require emphasizing.

The Farnham pits, one of which with well-defined entrance and post-hole and two distinct compartments is illustrated by PLATE VI, can be paralleled by previous finds at Hassocks and Selmeaton in Sussex as well as elsewhere in England and on the Continent, but as a general rule (*e.g.* on most of the Lower Greensand sites and on the Pennines) the Tardenoisian people seem to have been content with rough wind-breaks and possibly tents. Such impermanent structures would have been a natural result of their unsettled way of life. Yet when the local inducement was sufficient—and the spring at Farnham still provides excellent drinking-water despite the use to which the surrounding land is put—it is evident that they were not incapable of digging themselves

## ANTIQUITY

in to some extent out of the wind. This need hardly occasion surprise when the much more elaborate houses found on the open stations of the palaeolithic mammoth hunters of south Russia and Siberia (Malta, Kostienki and Gargarino) are remembered.<sup>2</sup> The number of pits at Farnham has not been exactly determined, but it is in any case not to be supposed that they were all inhabited at the same time. Probably the camping around the spring was a seasonal affair, indulged in by small groups of food-gatherers who normally sought their food wandering over the Lower Greensand. At least sections through the pit-fillings have shown clear evidence that some of the pits were used on more than one occasion, hearths being stratified at different levels.

It is hoped to publish a full account of the discovery in the *Proceedings of the Prehistoric Society* and to present the contents of two of the pits to the British Museum.

J. G. D. CLARK.

### BONE-CAVES IN JURA (PLATES VII, VIII)

A correspondent sends us the accompanying photographs of caves on the island of Jura (PLATES VII, VIII), off the west coast of Scotland (Argyll 177). They are situated on the north shore of Loch Tarbert, between Gleann Rìgh Mor on the northwest and Aird Reamhar on the south (Lat. 55° 58' N ; Long. 5° 58' W). As can be seen, in the mouth of the cave are numbers of sea shells and split bones, both of birds and mammals. Close by are the remains of the raised beaches that are found all down the west coast. There seems little doubt that these caves were inhabited by man. Whether their occupation goes back to the period of the raised beaches could be determined only by a careful survey of the whole coast and by excavation. Our correspondent suggests that the site is suitable for an excavation camp, for it is remote from all roads and from human habitation, and could only be explored in this way. We would add that the excavation of such a site is not a job to be lightly undertaken, nor by anyone without considerable previous experience.

The island of Jura has been isolated from the rest of Scotland all through history. It may have been the *Hinba*, *Hinbina insula*, of Adamnan, visited by Saint Columba. In 1772 the people still lived in very primitive conical huts, like those described by the old writers (Pennant's *Second Tour in Scotland*, Pinkerton's *Voyages*, vol. III, 1809, plate opp. p. 278).

---

<sup>2</sup> V. G. Childe. *Procs. Prehist. Soc.*, 1935, p. 152.



## NOTES AND NEWS

### A BRIDGE IN THRACE (PLATE IX)

The modern Greek province of Eastern Macedonia corresponds with an area which in antiquity was included in Thrace. South of the small modern town of Drama, which is identified by some with the ancient Drabeskos, is a wide undrained marshy area derived from the various streams of the river Angista, which is undoubtedly the ancient Angites. Roughly southwest of Drama rises the isolated mass of Mount Pangaeum, the great gold-mining centre of the Greek world. North and south of this mountain two depressions give access for a route from east to west. Both routes are used today and converge on the Strymon near the site of the ancient Amphipolis. The river Angista, which rises in the mountains north of Drama, ultimately flows into the lake made by the Strymon below the larger lake Tahino.

The marshy region of the Angista is some fifteen kilometres square. A modern track leaves Drama and passes through the villages of Koudounia and Mavrolefki, skirting Banitsa and so reaching Kormista, which is the principal village on the north which gives access to the mountain, by way of the monastery of Eikosiphoenisses, which stands some 1000 feet up.

At Banitsa begins the curious five-kilometre-long Iron Gates of the Angista, a deep ravine with rapids. Through this ravine run the accumulated waters of the marsh. The marsh today is known as Gournokoumaso.

A main route in ancient times could run across the Drama plain from the east, through Banitsa and along the edge of the Iron Gates, getting round Pangaeum by the north along easy land. The Via Egnatia may possibly have run this way. But it may equally have run south of Pangaeum.

Exactly three kilometres east of Banitsa village—near a point where the main stream of the Angista turns west to enter the Iron Gates near Banitsa—is a large two-span stone bridge (PLATE IX), alongside the Mavrolefki-Kormista track. It is aligned north and south and today stands in marsh rather than athwart any large part of the stream. The Angista stream is only a half a kilometre north of it, running east and west.

The bridge was thus built to deal with conditions which were different from those evident today.

Its main feature is the fine central cutwater. Remains of a coping exist over the southern arch.

The bridge-builders who have lived in this region, and whose architecture was capable of a bridge of this character, were the Romans,

## ANTIQUITY

Byzantines, Venetians and Genoese, and possibly Turks. The character of the bridge seems to rule out the ancient Greeks. Roman Philippi is near at hand. Venetian work is seen at Kavalla at the south end of the plain of Philippi. Turkish work is everywhere round in the countryside. A Byzantine castle exists at Eleutheræ, south of Pangæum on the coast. Genoese castles are found not far away at Enos.

The bridge does not seem to me to be Turkish and is certainly not modern Greek. Modern Greek work is ruled out by the fact that this district was a Turkish province up to 1913 and local Greeks were a depressed *rayah* class. Moreover the bridge was designed to meet conditions which must have existed a long time ago.

The masonry does not resemble Italian or Byzantine medieval work of the type seen in these parts. It seems therefore that the bridge may be Roman. But to what system of roads it belongs I cannot say. Its solid and well-designed structure suggests that it carried a road of importance. The fact that the bridge is aligned north and south and not east and west as would be required for a road-bridge on the Via Egnatia may be due merely to a deviation made necessary by the wanderings of the Angista streams. Three Roman roads converged from the west on Philippi. The bridge may belong to any one of these.

STANLEY CASSON.

### ROMAN BAS-RELIEF, AVIGNON (PLATES X, XI)

In ANTIQUITY for December 1936 (p. 468), Dr D. P. DOBSON mentions the Roman relief, depicting a boat laden with wine-barrels, which is now to be seen in the new lapidary section of the Musée Calvet at Avignon. This monument has never been adequately reproduced, and it has in consequence received less attention than perhaps it deserves. It was found some thirty years ago near Cabrières d'Aigues (Canton Pertuis, Vaucluse) together with the three fragmentary reliefs, of similar material and workmanship, which are now incongruously grouped against its reverse face (Deydier, *Bull. Arch.*, 1912, 87, pl. XXII; Espérandieu, *Recueil général des bas-reliefs de la Gaule romaine*, LX, 100, nos. 6799, 6800). All are carved in a hard, brown, rather coarse-grained limestone, derived probably from the local quarries of Luberon. In its present condition the block here illustrated (PLATES X, XI) measures 1 m. 50×0.58×0.40, but a considerable portion from the right-hand end is missing. An offset of about an inch is clearly marked on the upper face, and together with the other fragments, which depict respectively a stack of storage-jars, a horse drawing some object now

PLATE V

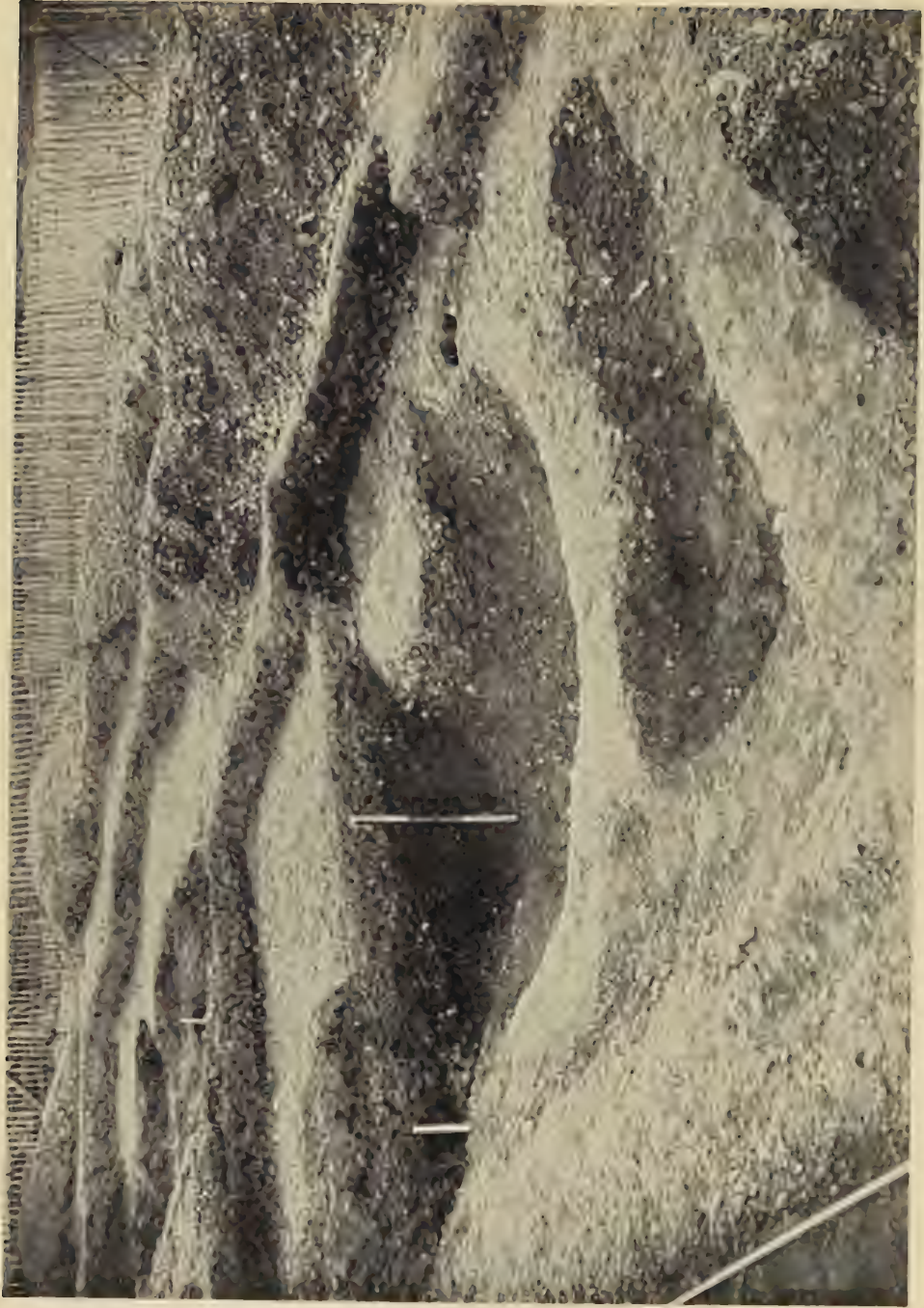


MESOLITHIC PIT-DWELLINGS, FARNHAM, SURREY (see p. 476)

The permanent spring—the focus of the settlement



PLATE VI



MESOLITHIC PIT-DWELLINGS, FARNHAM, SURREY (see p. 477)

Pit 2 in the foreground, with a section of infilling left in position, the line of the Romano-British ditch being marked by a white peg on the left. In the left background pit 1 can be seen, the hearth being indicated by a white peg.

PLATE VII



CAVE ON WEST COAST OF JURA, ARGYLL (see p. 477)  
ph. G. Marples



PLATE VIII



CLOSE-UP OF CAVE IN JURA SHOWING SHELLS AND BONES (see p. 478)

PLATE VIII





A BRIDGE IN THRACE (see p. 479)



ROMAN BAS-RELIEF, MUSÉE CALVET, AVIGNON (*see p. 480*)  
*ph. J. B. Ward Perkins, reproduced by courtesy of Musée Calvet*





ROMAN BAS-RELIEF, MUSÉE CALVET, AVIGNON : enlarged detail (*see* p. 480)



PLATE XII



A TURKISH WATER-BOTTLE (*see* p. 482)

## NOTES AND NEWS

lost, probably a cart, and a man, who is perhaps leading the horse of the second fragment—it probably formed the decoration of a tomb upon which was portrayed the occupation of the dead man during life. Such tombs are more common in northeast France, but are not unknown in Provence. In form it would be an upstanding, box-like structure, a humble variant of the mausoleum of the Julii at St. Rémy or of the towers which once stood at Aix-en-Provence.

The form of the boat calls for no special comment. With its shallow draught it was well adapted for river-work and the type was widely employed in Gaul. The boat on the Igel Column (Drexel, *Mitt. Arch. Inst. Rom.*, 1920, 91) affords an obvious parallel. The river-transport of the Rhône valley was organized upon a scale unsurpassed elsewhere in the Roman world. Besides the great companies which operated upon the Rhône, the Saône and in part upon the Loire, there were smaller groups upon the lesser rivers. To one of these, the *nautae Druentici*, who brought the produce of the Durance valley to the quays at Arles for shipment abroad or for transport up-river to Lyon and beyond, the dead man may well have belonged. By far the most important item of his freight would have been, as here, wine. Pliny (*Hist. Nat.* xiv, 68) does not speak highly of the general quality of the wine produced in Narbonensis, although that of Baeterrae (Béziers) enjoyed a high reputation in Gaul, and by the middle of the first century A.D. it was finding its way to Rome (CIL, xv, 4542-3). There can however be little doubt that wine formed the largest single item of export and that it constituted the bulk of the *aunona*, the taxation in kind, paid by the province. The lower Durance is also well adapted for the production of oil, and it may be suggested that the wicker jars here depicted are for the storage of olives.

Stylistically the relief is of great interest. The figures have a good deal in common with certain Romanesque work, *e.g.* the reliefs in the cloister at Gerona (Deschamps, *La sculpture française à l'époque romane*, pl. 89). The similarity is of course purely accidental, but the possibility of such comparison is significant of the quality of a good deal of the lesser sculpture of Roman Provence. Interest has in the past inevitably been centred upon the greater monuments such as the arch at Orange and the monuments at St. Rémy. Yet there too more attention might with profit have been paid to the sculptural past of the region. The local version of the classical Greek idiom, while dependent for expression upon the economic conditions established under Roman rule, was parallel to, rather than derivative from, the art evolved in

## ANTIQUITY

Augustan Rome. In a few districts, notably at Vaison, the metropolitan art gained a complete ascendancy ; a visit to this remarkable site can be most depressing. Elsewhere the provincial element was strong ; and so far from being a mere barbarization of Roman elements, it had a decided positive content of its own. In particular is this true of the lower Rhône valley, where objects such as the ' Tarasque of Noves ' (Espérandieu, *op. cit.*, I, 121) attest the degree of skill and originality that could be attained by the pre-Roman craftsman.

The dating of this provincial sculpture is not easy. The present example is clearly related to two other reliefs at Avignon, both of which came from the Château de Maraуди near Vaison and depict respectively the labours of Hercules and a sacrificial scene (Espérandieu, *op. cit.*, I, 274 and 290). All three may presumably be dated to the first, or early second, century A.D.

Whatever its qualities, it is clear that the time is past when work of this type could simply be dismissed, as Drexel dismisses this relief, as crude and rustic. There is a tremendous amount of bad provincial art, but there is also much that is good ; and it is hardly surprising that it is in precisely those works which display the strongest influence of the native idiom that that art is to be seen at its best and most interesting.

J. B. WARD PERKINS.

### A TURKISH WATER BOTTLE (PLATE XII)

The conditions of the Anatolian highlands have tended to preserve to the present years many forms of early craftsmanship, of which the wooden water bottle (scale : 5 cms.) illustrated (PLATE XII) is an example.

As shown in the photo the bottle is equipped with three ' necks ', the main one in the centre and one at either side, all connecting with the interior of the vessel. An alternative shape has only one subsidiary neck.

The centre of manufacture appears to be two villages, Evciler and Kozluca, near to Sandikli in the Afyan Karahissar Vilayat. The extent of circulation of these utensils has not been determined, but it is probably confined to the Sandikli Karmakamati.

The material used is pinewood, the whole body being carved from the one block. The inset base is the only added portion. The tools used are (a) an adze for roughing out the exterior shape, (b) a large type of awl with a wooden cross-handle for hollowing out the interior. Numerous holes are made and the loose intervening wood is cut out



## NOTES AND NEWS

with (c) a chisel and mallet. The holes in the necks are burnt out with a hot iron.

I am indebted to Mr R. H. Macartney, A.R.I.B.A., for the technical information.

J. R. STEWART.

### HUMAN REMAINS, SWANSCOMBE, KENT

The following statement has been prepared by the Swanscombe Research Committee :—

In June 1935, Mr A. T. Marston was responsible for the discovery of a human occipital bone at a depth of 24 feet (7.3 metres) from the surface in the stratified Middle Gravels of the 100 ft. terrace of the Thames at Swanscombe, Kent. The following March he discovered a left parietal bone which articulated perfectly with the occipital. Both bones lay in the same seam of gravel, though at a distance of 8 yards (7 metres) from one another. Associated animal bones (*Elephas antiquus*, etc.) indicated interglacial conditions, and Middle Acheulian implements, in an unabraded condition, occurred at the same horizon.

Preliminary accounts of the discovery appeared in *Nature* (19 October 1935, and 1 August 1936), and on 12 January 1937, Mr Marston delivered a lecture on his excavations at the Royal Anthropological Institute (*Man*, 1937, 35). His full report will be published in the *Journal* of the Institute.

Under the aegis of the Institute a Committee has been formed to investigate the evidence which Mr Marston has collected, and to co-operate with him in the further exploration of the site. This Committee consists of Mr M. A. C. Hinton, F.R.S., Keeper of Zoology, British Museum (*Chairman*); Mr K. P. Oakley, Department of Geology, British Museum (*Secretary*); Professor P. G. H. Boswell, F.R.S., Department of Geology, Imperial College of Science, London; Professor W. E. Le Gros Clark, F.R.S., Department of Anatomy, University of Oxford; Dr Frank Corner, F.G.S.; Mr H. G. Dines, Geological Survey of Great Britain; Mr C. F. C. Hawkes, Department of British Antiquities, British Museum; Professor W. B. R. King, Department of Geology, University College, London; Mr A. T. Marston, L.D.S.; Dr G. M. Morant, Galton Laboratory, University College, London; and Mr S. Hazzledine Warren, F.G.S. The Committee is receiving financial support from the Royal Society. It will prepare a joint report on its findings, which will be published in due course.

## ANTIQUITY

### PETROLOGICAL ANALYSIS

We gladly print the following communication on the importance of petrological analysis applied to Stone Implements, which is receiving the attention of a sub-committee appointed by the South-Western Group of Museums.

The time has now passed in archaeology when museum specimens were considered as possessing merely an intrinsic value in themselves unrelated to their potential use as scientific evidence towards the furthering of research. Moreover, through the adoption of modern methods of research, archaeology has tended increasingly during the past fifteen years to take its place among the recognized sciences.

Among such methods must be considered the identification of the rocks of which certain implements are formed, by means of petrological analysis. Any petrologist will agree that, as a rule, precise identification by microscopic examination of rock specimens is uncertain and dangerous, while, in the case of objects, *e.g.* stone axes, adzes, or mace-heads, which have been ground and polished, accurate identification is impossible short of taking thin sections. Microscopic examination is particularly desirable where a question of comparison of rocks is concerned. A case in point may be taken from three axes in a provincial museum, recently examined, where the colour and indeed the apparent texture of all three, differed considerably, but on microscopic slides being taken from each specimen and examined it was proved that all three were composed of the same rock.

It was by means of microscopic examination that Dr H. H. Thomas was able to show that the provenance of the 'foreign stones' at Stonehenge was undoubtedly the Presely region of South Wales, where a unique dyke of a certain type of ophitic dolerite exists. At a later date the taking of thin sections from two axes found in co. Antrim showed these to have been made from this ophitic dolerite, thus identifying their source of manufacture. During the excavations of the neolithic causewayed camp at Windmill Hill, near Avebury, Wilts, between 1925 and 1929, all specimens of stone geologically foreign to the locality discovered were similarly dealt with and microscopic slides made, with the result that it was discovered that practically all such specimens probably came from North Wales, while certain of them, which were made of the augite granophyre only to be found at Graig Lwyd, Carnarvonshire, certainly did so. Fresh light was thus thrown on

## NOTES AND NEWS

cultural connexions between North Wales and North Wiltshire. In 1934 and 1935 implements of this rock were discovered during the excavations of the megalithic avenue running from Overton Hill to the circles of Avebury. These were likewise identified beyond doubt by microscopic analysis.

It must be realized that the axe factory of Graig Lwyd was probably only one of many such, exporting wares beyond the confines of their immediate vicinity, particularly to regions, such as that of the chalk, where igneous or metamorphic rocks suitable for the manufacture of the implements required are absent. It is by means of the identification of the original provenance of stone implements and comparison with the sites where each has been found that it is hoped to throw considerable further light on such important questions as trade routes and consequent diffusion of cultures, through proved connexions between specified parts of the country at certain periods.

In order to further this branch of research a sub-committee was formed by the South-Western Group of Museums in 1936. The functions of this Committee are, shortly, to collate work already carried out by other investigators, to take thin sections from suitable specimens, to compare the results of the petrological analyses, to compile records by means of fully documented and illustrated cards, to draw out distribution maps, and from time to time to publish interim reports of progress. Much work has already been carried out, and fresh information acquired, as well as confirmation of that already obtained. At the same time it must be stressed that the Committee are wholly dependent upon the cooperation of museum curators and private collectors for material for their researches, which it is desired, in order that they may be representative, should cover as wide an area as possible. An appeal is therefore made to those willing to assist in the work to communicate with the Hon. Secretary of the Committee (Stuart Piggott, F.S.A., Avebury, near Marlborough, Wilts). Specimens loaned, which should be accompanied by particulars of the site of their discovery, will be returned immediately microscopic slides have been made, and copies of petrological reports will in each case be forwarded later. It should be emphasized that the operation of obtaining a thin section does not, when skilfully carried out, damage a specimen as such. Any specimens submitted to the Committee will, if desired, before return be treated in such a way that practically no indication of the process will be visible.

ALEXANDER KEILLER.



## ANTIQUITY

### INSTITUTE OF ARCHAEOLOGY, LONDON

The Institute of Archaeology was opened in April 1937, as a centre for research and training in branches of archaeology for which inadequate provision exists elsewhere within the University of London, and its first prospectus (session 1937-38) gives promise of much activity. The programme for the first term has included lectures on *Recent Archaeological Field-Work in Great Britain*, given by authorized members of the staffs of the expeditions concerned. Another course of six dealt with *Archaeological Draughtsmanship* and four public lectures were given on *Geochronology*. Important courses begin on 18 January on *The Principles and Technique of Field Archaeology* (16 lectures) and *Geochronological Methods and Results* (4 lectures) on 26 January. During the third term four public lectures on *Near Eastern Archaeology* will be given on Wednesdays, beginning 4 May.

Practical instruction in the repair and preservation of archaeological material can be obtained at the Institute, where there is a workshop for this purpose, and a fully equipped photographic studio enables private tuition in this very necessary aid to excavation work to be obtained.

The Institute is also prepared to assist suitably qualified students to obtain experience of field-work in a voluntary capacity in Great Britain.

Particulars of these and other facilities for the study of Archaeology can be obtained from THE INSTITUTE OF ARCHAEOLOGY, St. John's Lodge, Regent's Park, London, N.W. 1.

### EARLY MAPS (PLATES XIII-XIV)

The earliest separate printed map of Great Britain has been held to be that of Pietro Coppo, whose maps, printed from woodblocks, were discovered by Professor Almagia at Pirano in Istria, and were described by him in *Geographical Journal* May 1927, LXIX, 441. But the maps illustrated in this number, may be as old as, if not older than, those of Pietro Coppo, to whose work Professor Almagia assigned the probable date of *c.* 1525. These illustrations are taken from Ashmole 1352 in the Bodleian Library, Oxford, and thanks are due to the Keeper of Western MSS. for permission to reproduce the maps (PLATES XIII-XIV).

Some description of the volume in which the maps occur may be useful in assigning date and purpose to the work. Ashmole 1352 is a small duodecimo volume, bound in boards covered with old white leather, and containing twelve leaves of parchment. But for rubrick

## NOTES AND NEWS

numbers and names, and some few names which were added with a pen in black ink, all the work is printed from blocks, and it is all obviously French. In addition to the maps, there are nine circular tables shaped like a mariner's compass, a calendar of saints' days with emblems, and a table of movable feasts for 1451-78. This suggests a very early date for the whole volume, but the general character of the work points to the early 16th century rather than the latter half of the 15th. Such tables of feasts were sometimes reproduced after their period of immediate usefulness was over, and the early 16th century is a safer assumption of date. There are four maps: one of the coast of the Bay of Biscay, one of the northern coast of France, one of England (with part of Scotland), and one of Ireland, and all are based on the model of the portolan chart, as in the manner of printing the names round the coast, and in the conventional design of the coast-line. But it is very doubtful if these maps were ever put to any practical use. In the first place, though the printing is large, and usually clear, the maps are relatively much too small. (The measurement of each folio is approximately only 10.6 cm.  $\times$  7.5 cm.). The compass is drawn in all four maps, but is in each case pointing in the wrong direction.

However, though the work is crude, there are many points of interest, for the names are given in more modern form than is usual in derivatives of portolan charts of the early 16th century, and there are several problems for the student of place-names. Some of the names have not so far been identified, and suggestions are invited as to the identity of the following in particular:—S. Richart, on the south coast of England, between Portsmouth and Beachy Head; Pilfout, between Kirkcudbright and Liverpool; Quilique, between Orford and Great Yarmouth; Queff, between Hull and Newcastle; and Nerg (or Nerr) between Newcastle and Berwick. There are other obvious gaps yet to be filled, but S. Richart, Queff and Nerg, are particularly puzzling. There are two early 16th century MS. maps in British Museum Add. MS. 22721, one of which bears a very close resemblance to Ashmole 1352. For the most part the names given are the same, but the B.M. map gives greater detail by placing S. Richart between Portsmouth and Arundel, and Queff between Hull and Scarborough. The other map gives 'Ners' between Newcastle and Berwick.

The following Lists of Places named on the maps, with their modern equivalents, should be compared with the reproductions on PLATES XIII and XIV. The places marked with an asterisk are written in red ink on the originals.

# ANTIQUITY

## FOLIO I VERSO, THE BAY OF BISCAY (PLATE XIII, left)

ABIRI  
 CONQUET (Le Conquet)  
 \*BREST (Brest)  
 PENMARC (Penmarch)  
 \*BENEDET (Anse de Bénodet)  
 CONC (Concarneau)  
 \*——ET  
 QUEPERON (Quiberon)  
 \*CRACH  
 \*MORBI...  
 CROASIC (Le Croisic)  
 ——BON  
 BELESEUES  
 S. GILLE (S. Gilles)  
 OLONA (Olonne)  
 ROCHELA (La Rochelle)  
 CHARÂT (Charente)  
 \*BROUAIGE (Brouage)  
 MARENE (Marennes)  
 BEC  
 SOULAC (Soulac)  
 \*ARCASON (Arcachon)  
 BAIÔE (Bayonne)  
 S. J. DE LUC. (S. Jean de Luz)  
 FÖNTERABIE (Fuenterrabia)

\* ?  
 S. SEBASTIE (San Sebastian)  
 CATARIA (Guetaria)  
 BERMEO (Bermeo)  
 MARTICO (C. Machichaco)  
 BILBAO (Bilbao)  
 CASTRO (Castro Urdiales)  
 \*S. TONGE (Santoña)  
 \*S. ANDRE (Santander)  
 S. VICENT (S. Vincente d. l. Barquera)  
 RIBESEIL (Rivadesella)  
 TORES (C. de Torres)  
 PESDEGOSÖ (C. delas penas de Guzan)  
 AVILLES (Aviles)  
 NAVA (Navia)  
 LOUARCA (Luarca—misplaced ?)  
 \* ?  
 S. MARTA (Ria de Sta. Marta)  
 \* ?  
 ORTIGUERE (Ortigueira)  
 \* ?  
 \*COULOINE (Corunna)  
 \*MONGI (Mugia)  
 \*MORES ?  
 \*FINESTERE (Finisterre)

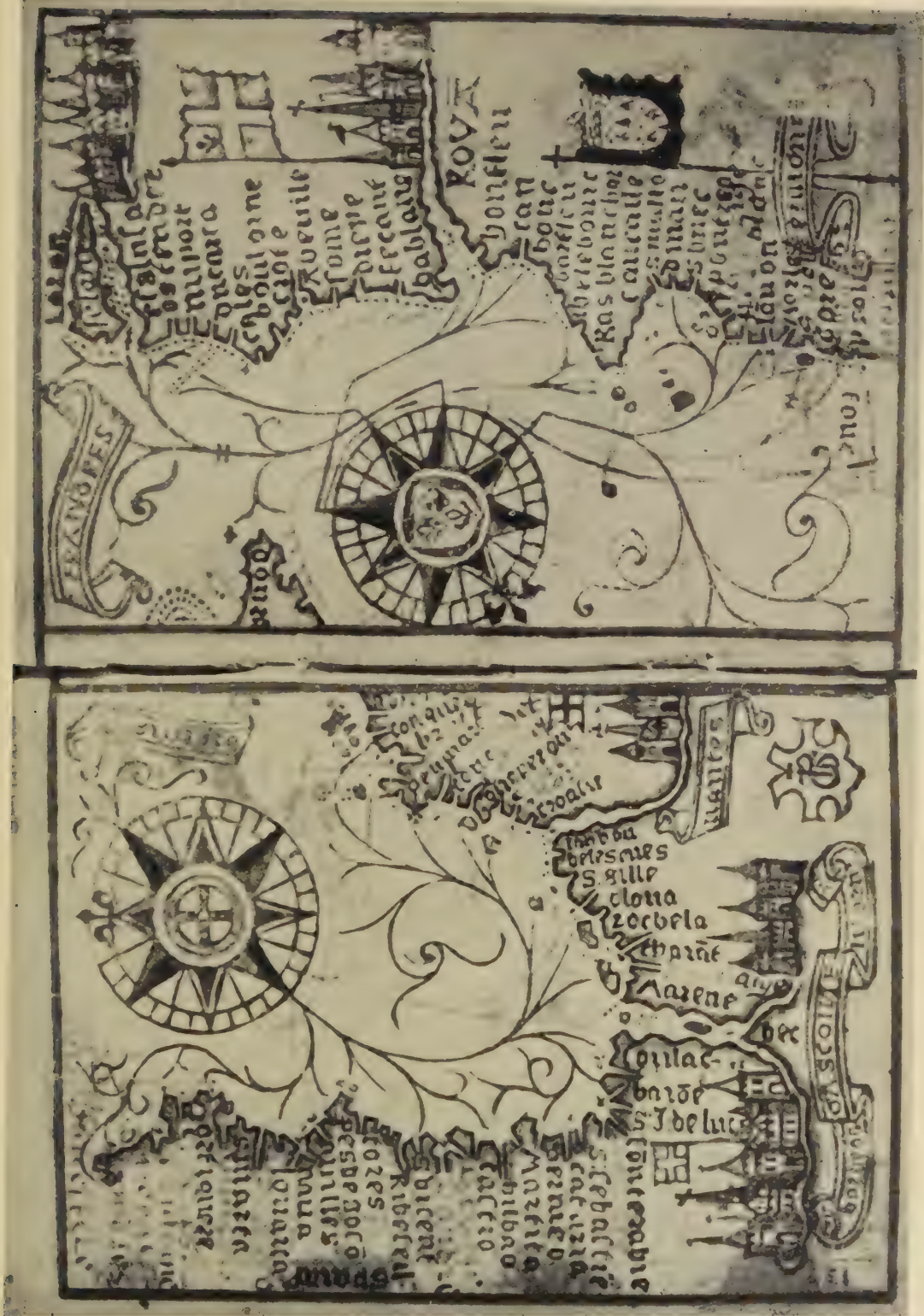
## FOLIO 2 RECTO, FLANDERS, ETC. (PLATE XIII, right)

\*SELANT (Province of Zeeland, Holland)  
 ESALNSA  
 OSTENDER (Ostende)  
 NUPORT (Nieuport)  
 DUCARCA (Dunkirk)  
 CALES (Calais)  
 BOULOINE (Boulogne)  
 CROTE (Le Crotoy)  
 ABEVILE (Abbéville)  
 SOME (Somme)  
 DIEPE (Dieppe)  
 FECANT (Fécamp)  
 HABLANE  
 ROVÂ (Rouen)  
 HONFLEU (Honfleur)  
 CAN (Caen)  
 HOUC (la Hougue ?)  
 BARFLEU (Barfleur)

CHELEBOURC (Cherbourg)  
 RAS BLANCHAR (Raz Blanchart, between  
 Alderney and Cap de la Hague)  
 CANCELLE (Cancale)  
 S. MALLO (S. Mâlo)  
 DINAN (Dinan)  
 S. BRIEC (S. Brieuc)  
 PONTREO (Pontrieux)  
 \*LAN[ ]RIGES  
 \*PORT BLANC (Port Blanc, near  
 Penvénan ?)  
 LĀNON (Lannion)  
 MORLES (Morlaix)  
 \*S. POLL (S. Pol de Léon)  
 GORE  
 \*ABRA[ ]  
 P. SOLL (Porsal, Portsall ?)  
 †ABIRILLANT

† Added in MS—black ink.



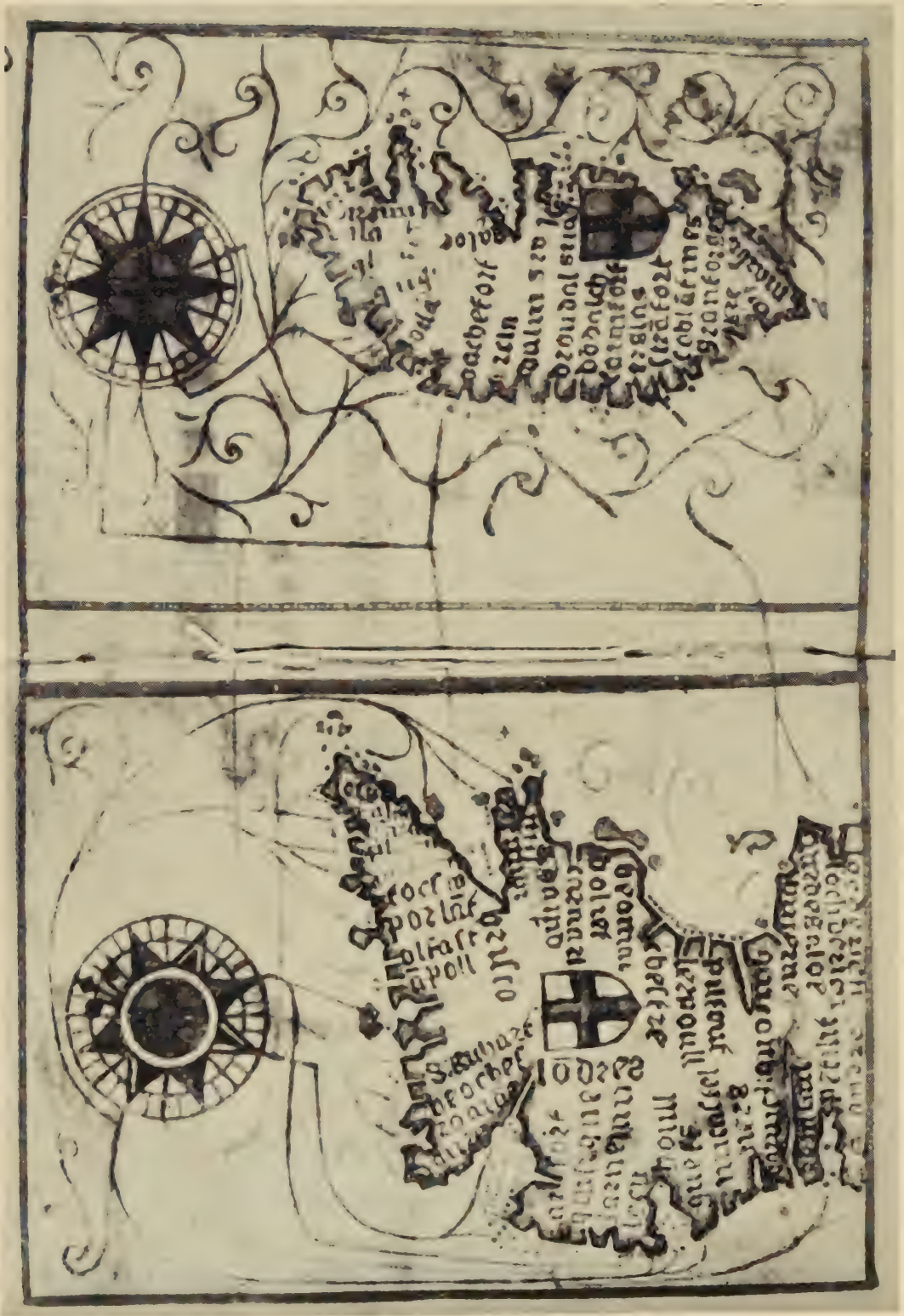


AN EARLY MAP IN THE BODLEIAN LIBRARY, OXFORD (Ashmole 1352)

*By permission of the Keeper of Western MSS.*

Fo. 1 verso, Day of May see p. 488)

Fo. 2 recto, Flanders, &c. (see p. 488)



AN EARLY MAP IN THE BODLEIAN LIBRARY, OXFORD (Ashmole 1352)

Fo. 2 verso, England and Scotland (see p. 489)

By permission of the Keeper of Western MSS.

Fo. 3 recto, Ireland (see p. 489)



## NOTES AND NEWS

### FOLIO 2 VERSO, ENGLAND AND SCOTLAND (PLATE XIV, left)

*LOCDERIEN (Loc de Rien=Loch Ryan)	PORLÂT (Portland)
LOCHDERIEN	OLFAST (Handfast Point, Purbeck)
MURDEGALOE (Mur de Galoe=Sea of Galloway ; Luce Bay ?)	*ĀPOLL (Poole)
HUTORNE (Whithorn)	*PORSEMU (Portsmouth)
QUICOITBIT (Kirdcudbright)	S. RICHART
PILFOUT	BEOCHEF (Beachy Head)
LERPOULL (Liverpool)	ROMĀE (Romney)
CHESTRE (Chester)	DOURE (Dover)
BEOMAI (Beaumaris)	LŌDRES (London)
HOLIET (Holyhead)	ARFORT (Orford)
CARNAR (Carnarvon)	QUILIQUE
S. DAVID (St. David's)	JARNMU (Great Yarmouth)
*MILFORT (Milford Haven)	LECU (Lincoln ?)
TINIBI (Tenby)	HOULL (Hull)
BRISTO (Bristol)	QUEFF
LESAR (Lizard)	NUCASTEL (Newcastle-on-Tyne)
*FALMU (Falmouth)	NERR <i>or</i> NERG
*FAUIE (Fowey)	BORUIC (Berwick)
*PLEMU (Plymouth)	[ ] OMTAIL
*DARTEMU (Dartmouth)	PETILIT
TOCSM (Totnes ?)	†S. ANDRE (St. Andrews)

† Added in MS—black ink.

### FOLIO 3 RECTO, IRELAND (PLATE XIV, right)

CLERR (Clear Island, and Cape Clear)	ERGLAS (Ardglass)
*VALANT (Valencia Island ?—misplaced ?)	STRĀFORT (Strangford)
*GLANDOR (Glandore)	†COBLĀTINES (Copeland Islands)
*QUĪQESALE (Kinsale)	GRANFORGES
*CORC (Cork)	GRE
OCLA (Youghal)	*ORFLET
* ?	MARBU
OACHEFORT (Wexford)	VUS
ARCLN (for ARCLU=Arklow)	LARS
DULIN (Dublin)	GALOE (Galway)
DROUDAL (Drogheda)	?
DŌDALCH (Dundalk)	LIMERIC (Limerick)
†CARNIFORT (Carlingford)	

‡ Written in red ink over the print.

I. G. PHILIP.



# The Plan for Avebury

## AN APPEAL TO THE NATION

*The safety of Avebury is of such importance that we print in full the appeal which has been issued by the Avebury Preservation Fund, and hope that it will meet with generous response from many who are not yet acquainted with the details of THE PLAN.*

TWO years ago in an article in *The Times*, Mr Ormsby Gore, then First Commissioner of Works, drew attention to the urgent necessity of taking steps to preserve the surroundings of Avebury by means of a Planning Scheme, and expressed the hope that it would not be long before such a scheme was initiated.

That hope is now in course of fulfilment, for, in advance of the main Wiltshire Planning Scheme, a scheme has been prepared, under the Town and Country Planning Act 1932, for the planning and preservation of the village of Avebury and its immediate surroundings. Such a scheme, involving, as it does the prohibition of building in certain areas and its restriction in others, cannot be put into effect without the payment of compensation, and while the response of more than one owner has been immediate and generous, it is inevitable that a scheme of this kind, in which the element of preservation predominates, should be comparatively costly.

It is equally clear that the financial burden of such a scheme is completely beyond the capacity of the Marlborough and Ramsbury Rural District Council, which is the local Authority for the area, and from the beginning it was recognised that a merely local effort could not, in the nature of things, be sufficient if the end in view were to be achieved.

## THE LANDSCAPE

The land which is the subject of this Appeal lies round the head waters of the River Kennet, and stretches upwards, on the eastern side, to the crest of Hackpen. The Marlborough downs here drop westward in two steps or escarpments the first being the long, wavy, and delicately channelled slope of Hackpen itself; and the second a short, abrupt fall from the chalk to the clay. Avebury is nearly in the centre of the undulating plain thus formed between the two steps. The whole landscape is typically of the chalk: quiet, spacious, and changing

## THE PLAN FOR AVEBURY

subtly with every shift of light and air and, by reason of its subtlety, exceptionally sensitive to deformation by any planting or building which is not in keeping with its lines and colours.

### THE MONUMENTS

But not only is the area one of natural loveliness ; it encloses a group of remains of antiquity unparalleled in these islands. To the north-west on Windmill Hill lies the once mysterious earthwork where excavations have revealed a remarkable Neolithic settlement. To Archaeologists the site is famous because the sequence of pottery discovered here has provided the framework for the modern classification of the British Neolithic cultures, but to the ordinary visitors it makes an appeal as the home of a forgotten people who left behind them vivid evidence of their manner of life in this period of the Stone Age.

Deserted by its inhabitants, this wind-swept hill was re-peopled at the close of the Neolithic period of North Wiltshire (1900-1800 B.C.), while, down in the valley, the gigantic monument of Avebury was being constructed by folk in the same late stage of Stone Age culture—the Beaker period—when the first bronze implements were finding their way into the south coast ports. Of this, the greatest among megalithic monuments, it is hard to speak except in superlatives. The stupendous circular ditch, with its equally impressive bank, encloses an area of over 28 acres. In spite of neglect and active destruction, many of the huge stones remain which, in the days before the monument had lost its original completeness, formed a series of majestic circles. But when the work of clearance of undergrowth and re-erection of buried stones has been completed, something of the ancient glory will return.

To the south, on Overton Hill, lies the site of other circles, of stone and of wood, which have disappeared, the former by wanton destruction in 1725, the latter in the course of natural decay long centuries ago. The site, with its circles carefully marked, is now in charge of the Office of Works. From the Overton circles run, in tortuous course, the extensive remains of a megalithic avenue, over a mile in length, entering the Avebury circle on the south. The northern part of this Avenue, where the fallen and buried stones have been set up in their original holes and the sites of lost stones appropriately marked, is now an imposing spectacle comparable with that which met the astonished eyes of Aubrey in January 1649.

A familiar feature of the landscape is Silbury Hill, beside the Roman road, between West Kennet and Beckhampton. Mysterious in its

## ANTIQUITY

origin it is the largest artificial mound in Britain. In 1663, Charles II, with Aubrey as his guide, visited Avebury and climbed to the top of Silbury Hill. At his command, Aubrey made his famous plan and wrote a description of the site of Avebury.

### THE CHURCH, THE VILLAGE AND THE MANOR

This is the prehistoric setting of the Avebury scene. Roman and Saxon have left their mark as well. Across the southern limit of the area runs the Roman road to Bath. In the parish church, just outside the Circle to the west, parts of the early 11th century building are incorporated in the present nave. Sarsen quoins and fragments of Saxon carving built into the structure tell their tale of historical succession, extending to the later middle ages, when the fine rood screen was set up, and, alas ! beyond this, to the ' restoration ' of the 19th century.

Close to the church is the manor in its setting of English loveliness, of lawn, of green valleys, and of ancient trees. Part of the present building dates from before 1548, and it was in the second half of the 16th century that the main additions were carried out, though much interior decoration was done in the 17th century.

The village has encroached upon the Circle, but to no really harmful extent. Condemned houses will go and they will not be replaced. Avebury itself will remain in its country peace, with its agricultural needs unhampered, and the monuments of its age-long history all about it ; it will be preserved not as a dead museum piece, but as a living witness to the continuity of civilisation in a corner of England.

### WHAT IS TO BE DONE

The areas covered by the prehistoric remains will be preserved for ever from building, and, by the willing co-operation of the owner, the Manor house and grounds as well. So much will be gained at the outset, but this will avail little if the incomparable surroundings are to be left open to desecration. Over the main part of the downland no new buildings will be allowed, except for agricultural purposes and necessary extensions of existing buildings. In other words, the prosperity of Avebury as a modern agricultural community will be safeguarded and future development will be amply provided for by the setting aside of adequate sites for new buildings.

But, beyond this, it is necessary that in the administration of the scheme, money shall be available for ensuring that new cottages are



## THE PLAN FOR AVEBURY

built so as to harmonise with this setting in colour, materials and lay-out; that the planting of trees in suitable positions shall continue; that all which is truly hideous shall ultimately disappear and that Avebury shall be preserved and continued as a monument of history and a thing of beauty for all time.

The scheme will be controlled partly by a special body composed of representatives of the County Council, the Rural District Council, the Parish Council, H.M. Office of Works, the Council for the Preservation of Rural England, the Wiltshire Archaeological and Natural History Society, and partly by the National Trust.

These are the objects of our appeal. The National Trust has kindly promised to receive the subscriptions and to hold the funds for the purposes of the scheme. We estimate that a sum of £11,000 (towards which promises of £4,000 have been made privately) will enable the ends we have set before us to be accomplished. The very smallest amounts will be acceptable. We ask all those who love the English countryside, who reverence our long history, and who wish to see what is still unspoilt preserved for our children's children, to give as generously as they can.

ERNEST WILLS, *Lord Lieutenant of Wiltshire*  
BATH, *Chairman of the Wiltshire County Council*

BALDWIN OF BEWDLEY

PHILIP SASSOON, *First Commissioner of Works*

W. ORMSBY GORE

STANHOPE

ZETLAND, *Chairman of the Executive Committee of the  
National Trust for Places of Historic Interest  
or Natural Beauty*

CRAWFORD AND BALCARRES, *President of the Council for  
the Preservation of Rural England*

F. G. KENYON, *President of the Society of Antiquaries  
of London*

H. C. BRENTNALL, *President of the Wiltshire Archae-  
ological and Natural History Society*

B. HOWARD CUNNINGTON

*Subscriptions should be sent to* THE AVEBURY PRESERVATION FUND,  
Barclay's Bank, 23 Grosvenor Gardens, London, S.W. 1.

## Reviews

ANCIENT IRELAND. By R. A. S. MACALISTER. *Methuen*, 1935. pp. xii, 307, 24 plates, maps. 10s 6d.

In his introduction Dr Macalister states that this work is intended as a supplement to his *Archaeology of Ireland*, published in 1927. He now adopts a more anthropological standpoint, and attempts 'to work back through the artifacts to the men who made them, and to reconstruct the conditions in which they lived'. This after all is the aim of all archaeological work; and frequent reference to scientific archaeology, and to the need for discarding old delusions, whether due to misguided patriotism or romanticism, causes us to start out in high hope that here at last we are to have the survey of the pre- and early history of Ireland which we so badly need.

Dr Macalister writes persuasively, if sometimes a thought too poetically; and much of what he writes is interesting, even amusing. He is not afraid to say occasionally that 'we do not know'. But his hesitancy to commit himself on some issues is more than compensated by the extraordinary views which he advances on others—views which appear to be quite unrelated to any of the evidence marshalled in his earlier work or anywhere else. Even within the somewhat elastic limits allowed for a tentative theory a book which claims to deal with scientific archaeology must be expected to pay some regard for the well-established rules of archaeological evidence. The expert can no doubt be left to look after himself; but it does seem necessary to warn the 'ordinary' reader, for whom *Ancient Ireland* is evidently also intended, that much that appears in it seems to disregard rules and evidence alike. This seems to be particularly true of the earlier part of the book, to which what follows applies.

When, for instance, Dr Macalister states that the coming of the Middle-Late Bronze Age Sword-Folk interrupted or at least modified the development of the native Bronze Age in Ireland, we are ready to agree with him; for we can recall the changes in metal equipment outlined in the *Archaeology*, and there is an abundance of evidence for the same phenomenon from elsewhere in the British Isles. But when in the next breath he says that the Sword Folk built—or caused to be built—the round chambered cairns of New Grange type, the idea strikes us as unusual, to say the least; and we are not perhaps surprised to find that a search in all the usual places, including the *Archaeology*, quite fails to produce any evidence of the type that most archaeologists would demand. Dr Macalister has chosen here to ignore the quite considerable body of information, from Ireland and beyond, bearing upon the date and cultural context

## REVIEWS

of this type of tomb, not to mention those of the sword folk ; and instead has created a fantasy of his own (to which justice can hardly be done here) to explain a feature which is repeated in other tombs of the same type outside Ireland.

Other examples of the same kind of thing present themselves, though perhaps none is so outstanding as this.

Dr Macalister's treatment of the Keltic question also commands attention. Here certainly we start with a general reservation on the grounds of our ignorance.

But the resulting tentative statement (which in its final form—p. 85—becomes a statement of fact) includes an assumption that the Beaker People were Keltic and probably Brythonic. (This assumption, it is true, is discarded a few pages later). The Sword People (' who appear to have been brachycephalic '—why?—' and if not actually identical with at least cognate with the Beaker People at a later stage of cultural development ') were apparently Goidelic. Ireland therefore became a Keltic-speaking country at about the ' turn ' of the first millennium B.C., in the Middle-Late Bronze Age.

In this explanation the presence of two subsequent Iron Age invasions would seem to create difficulty. But Dr Macalister disposes of the first with the statement that as yet nothing is known of it ; while the second (of La Tène II), because of the tall stature and fair complexions of its people, was Teutonic—as Teutonic, indeed, as the Saxon invasion of England. The first explanation is certainly convenient ; the second discards archaeological and similar evidence in favour of folk-tales and traditions.

For one reader at least, therefore, the first hopes have ended in disappointment : the survey of prehistory in Ireland has still to come. Its writer will need to consider with care many of the ideas expressed in *Ancient Ireland*, in particular Dr Macalister's argument that climatic fluctuations have played the chief part in directing events. But unless archaeologists in recent years have been working on the wrong lines he will give more attention to pottery and other artifacts than Dr Macalister seems to have given. He will recognize the value of folklore and tradition as indicators, but he will surely not employ them (against the other evidence) as a means of solving detailed problems. And while our writer will insist on giving the artifacts their full value, he will not also expect them to achieve the impossible. They cannot, for instance, shed light upon the language of their makers. No one can say what language the Beaker People or the Sword Folk spoke ; nor can we even talk in terms of probabilities until their descent to linguistic groups recognized and recorded in historic times can be traced. Anything else is sheer guesswork, waste of time and misleading when presented as established fact. Signs were increasing that archaeologists recognized this : the revival of the old theorizing by one of the standing of Dr Macalister is therefore all the more unfortunate.

W. F. GRIMES.



## ANTIQUITY

SOVIETSKAYA ARCHEOLOGIYA. No. 1 (Akademiya Nauk USSR : Institut Antropologii, archeologii i yetnografii), *Moscow and Leningrad*. 1936. pp. 305.

While much admirable archaeological work, both in the field and in museums, has been done in Russia since the revolution, publication has fallen even further behind excavation than it was in Tsarist times. Archaeological journals have been few, badly printed, inadequately illustrated and burdened with a perhaps disproportionate quantity of polemical articles. The new journal, started by the Archaeological, Anthropological and Ethnographical Institute of the Academy of Sciences, is therefore to be welcomed if only as offering a new channel for publication. It is, however, actually a better channel than any of the periodicals hitherto appearing regularly. The paper and printing are good, the line and half-tone illustrations all adequate and some of the plates first-class. Best of all, for the benefit of western peoples concise French summaries have been courteously appended to all the articles (with the exception of reviews and the short reports on recent work).

The editorial, 'Our Programme', insists on the historical importance of archaeology because 'it collects and studies the concrete monuments of the history of culture which give a clear idea of aspects and realities of the historic past that written sources cannot fully illuminate', on the necessity for publication and on the need for accurate field methods (it is still thought necessary to protest against the 'excavation of tumuli by shafts and of settlements by trenches' as survivals of old bourgeoisie archaeology). A further duty is a 'merciless struggle against the pseudo-scientific writings of fascists and the persistent exposure of fascist falsifications of archaeological facts in order to build up a truly objective science'. But even an antifascist may enquire whether 'la lutte sans merci contre les altérations de tout genre du marxisme-léninisme qu'on rencontre encore dans notre littérature historico-archéologique' is really essential to, or even quite compatible with, 'a truly objective science'. For instance, in his article 'On the potter's art in primitive communist Society in the Forest Zone of European Russia' Voevodskij very properly and ably shows how certain ceramic forms and styles and techniques of decoration are restricted to specific climatic and floristic zones in Eurasia and America, and associated with the economies appropriate to such zones. But this observation does not perhaps suffice in itself to establish 'the absurdity' of 'bourgeoise' theories explaining really striking agreements in pottery between even Finland and Massachusetts as the results of migrations. The migrationist hypothesis should hardly be so rigidly excluded, though, in view of its predominant authority, emphasis on the alternative is thoroughly justified. In any case Voevodskij's observations on the technique of the Eurasiatic pit-and-comb

## REVIEWS

decorated wares in Russia, supported by excellent illustrations (including photographs of the comb stamps found on several dwelling-places) is a fine example of objective science in a universally accepted sense.

Other articles deal with rock engravings round Lake Onega and the White Sea ; the age of some Scythian barrows on the Middle Dnieper, dated too low by Rostovtseff ; microliths (apparently without gravers) from the Amur basin ; Copper Age and Sarmatian barrows in the Kalmyk territory ; a Gothic cemetery near Pashkovskaia on the Kuban, the camp (*gorodishche*) of Yelisavetinskaya near Krasnodar ; the mesolithic industries of Chan koba in Crimea ; and the 'stone fishes' of Siberia. The last named are shown by grave finds to be early neolithic ; 'the absence of poor graves indirectly attests the existence of a matriarchal régime and the communistic character of modes of production and life'. From the contents one infers that communist archaeology might still profitably study bourgeois techniques : it is as hopeless to reconstruct the plans of the Copper Age barrows from the data here given as it is in the case of Northumberland barrows described by Greenwell. We shall only begin to understand the important cultures of the Pontic steppes when van Giffen's methods are employed there.

V.G.C.

**JUNGSTEINZEIT-SIEDLUNGEN IN FEDERSEEMOOR.** By R. R. SCHMIDT. Parts I and II (to be completed in 3 parts). *Stuttgart : Ferdinand Enke Verlag, 1930-1936. Price in Germany, Switzerland, Palestine, 50 marks ; elsewhere, 62.50.*

In 1919 the Urgeschichtliches Forschungsinstitut of Tübingen under the veteran R. R. Schmidt conceived the bold project of a systematic geological, botanical and archaeological exploration of the Federsee mosses with a view of obtaining a comprehensive picture not only of complete prehistoric villages, but also of their environment. The conception was a noble one and at that date heroic. It has been realized by ten seasons of digging. It is not the excavators' fault that publication has been so long delayed since the firm that brought out the first part was dissolved in 1931. But the delay has lost the Institute the distinction of being the first to excavate and publish a complete neolithic village. Even so the hamlet of Aichbühl with its nineteen dwellings had been almost completely excavated before the operations at Köln-Lindenthal (described in *ANTIQUITY* 1936, p. 502) had been started.

As Prof. Schmidt foresaw, the peat has preserved not only wooden buildings but also a record of the climatic and floristic environment in which the builders lived. To take full advantage of this exceptional circumstance geological and pollen-analytical investigations proceeded hand in hand with the excavations. K. Bertsch's pollen diagrams give a precious picture of the changing flora of the

## ANTIQUITY

region since the time of glacial tundras. His conclusions have already been stated in the XVIII *Bericht des römisch-germanischen Kommissions*, 1928, as well as in botanical journals. Here Schmidt merely summarizes his results, reproducing a few diagrams. The neolithic settlements fall in the sub-Boreal phase during which the percentage of beeches in the local forest was steadily increasing; the period's dryness must therefore have been seriously exaggerated by earlier writers.

The rest of these two parts is devoted to the architecture of the Aichbühl hamlet. It consisted of 19 dwellings, a couple of sheds and a large house of non-domestic character, termed an 'Assembly-Hall'. The houses were grouped in four rows, facing a bay of the neolithic lake to the southeast. In front of each house a rectangular area had been strewn with stems and boughs to make a dry court in the wet peaty soil. Sometimes the courts of adjacent houses were joined up by corduroy ways. The dwellings were elongated rectangles, walled with split tree-stems set upright, covered with a gable roof (implied by a central row of four stout posts) and entered from the gable end. Each house was normally divided by a partition of doubtful height into a shallow antechamber or kitchen and a deeper sleeping room. A fireplace stood in the kitchen to the right of the door with an oven behind it. The inner room was heated by a hearth close up against the partition. The floors were of clay (with double layers of birch-bark under the hearths) but rested on a layer of tree-stems or split logs tightly fitted together on the peaty subsoil.

The floors apparently tended to sink into the peat and were accordingly renewed, four times in houses 2 and 13, thrice in 14, and once or twice in the rest. Sometimes the walls too were reconstructed. House 15 is substantially larger than the rest and is therefore reasonably called 'the Chief's House'. It fronts onto the 'village green' in the middle of which stands the 'Assembly Hall'. The latter is undivided and was apparently entered through two doors in a long wall. The corduroy court was, however, situated, as usual, at the (? closed) gable end so that the assembly met with muddy feet. Each house is described in detail with plans, sections and several excellent photographs inconveniently scattered about on different plates. Usually only the original ground-plan (with every piece of wood indicated) is illustrated, but uprights belonging to later reconstructions may be included. Many instructive details about prehistoric carpentry and domestic life can be learned from these descriptions, but the reconstructions are not always entirely convincing, and the history of house 3 is disturbing. It is described and planned on p. 75 as a normal two-roomed house with the rear wall 'ergänzt'. Yet supplementary excavations in 1930 seem to have revealed a perfectly good rear-wall with a narrower rectangular annexe beyond it.



## REVIEWS

Though the terms 'Aichbühl pottery' and 'Aichbühl phases I and II' are used, the relics that might give content to these terms are not described nor illustrated in the extant parts. Instead there is a lengthy recapitulation in which the twenty-three simple buildings are divided into the maximum number of distinct types (10 by plan), invested with classical names and so related to Greek architecture. Any long rectangular house is called a *megaron* even though it lacks the pillared fore-porch and central hearth of the halls at Mycenae, Tiryns and Troy to which the term was first applied. If the side walls extend a foot or so beyond the end wall, the extensions are labelled *antae*. The rectangular annexe to house 3 is termed an 'apse'. And in part III, where we hope for detailed descriptions of relics, we are promised a historico-comparative section 'establishing the connexion between the Northern and Mediterranean architectural forms in ancient Europe'. Still, this worthy publication of a pioneer enterprise, nobly conceived, will remain a classic indispensable to any archaeological, architectural or botanical library.

V. G. CHILDE.

THE JEW AND THE UNIVERSE. By SOLOMON GOLDMAN. *Harper*, 1936.  
\$2.50.

A year or two ago Dr Goldman, who is the Rabbi of a Chicago synagogue, was asked to deliver to the University of Illinois an octocentenary address in honour of the 12th century Jewish philosopher Maimonides. The book under review is an expansion of this address and attempts to establish a contrast between the Jewish world philosophy and western materialism. Two quotations will serve to illustrate the author's main contention: 'It is difficult for the occidental nourished on the syllogism to allow that there are either elements of reason, or appreciable intelligence in any other scheme or thought than his own. Any view of the universe which cannot be stated in major and minor premises, he regards as irrational, uncivilized, oriental'. And on the other hand 'looking at the universe organically, synthetically, qualitatively, or briefly in terms of personality, is deeply embedded in the Jew's consciousness'. The Jewish thinker 'places intuition, the instinctive comprehension of life as a whole, before logic or metaphysics'. In this connexion Dr Goldman naturally refers to Henri Bergson, whose philosophy is based on the distinction drawn between intuitive and intellectual knowledge, and the resultant resolution of the problem of free-will. But he dismisses him slightly, for Bergson has 'of Judaism, only what the blood stream can carry of such matters . . . We shall have to look elsewhere for genuine Jewishness. But wherever we will find it we will discover the personality, organic, intuitive view of the universe predominating'.

Moses Maimonides himself, whose philosophy and writings, especially in their relation to Aristotle, are examined in detail, was born at Cordova early

## ANTIQUITY

in the twelfth century, and as a youth passed into exile and found a new home in Egypt. Thus his environment was an Arab one. Curiously enough, in view of the picture of the Jew which Dr Goldman wishes to paint, the guiding principle of Maimonides' intellectual life was his passion for reason and logic. He made the basic assumption that there could be no opposition between religion and philosophy and hence that the popular phraseology of the Bible must veil the profoundest metaphysical truths. Essential among these was the doctrine of the incorporeality of God. Judaism was necessarily the acme of reason, and this perhaps explains why he was ahead of his time in rejecting, and indeed severely denouncing all that accretion of kabalistic and magical practices, necromancy, divination and astrology which clung about his co-religionists. But it was to the study, codification and exposition of the minutiae of the law in terms of Reason that, according to Dr Goldman, this medieval thinker gave his major strength. Neither intuition nor reason alone are safe guides. 'Judaism, Maimonides guessed, was a living entity only because and in so far as its Law lives'. And 'the laws affecting the Jew's daily life [make] for the continuity of the Jewish people, for the preservation of specific Jewish values'. No present day validity is, however, claimed by the author for Maimonides' metaphysical system, he is simply to be admired as a 'great humanitarian', a 'ray of light'. The whole book is, indeed, strangely inconclusive, perhaps because of that bondage to the Law which the orthodoxy of the author implies. Rabbi Goldman clearly wishes to wean Jewish youth from the worship of occidental logic (leading to fascism and nazism), and all he can offer them is a seat at the feet of the Prophets, Sages and Rabbis. The great Jewish intellects of today are, however, outside the Synagogues. Interesting for the light it throws upon orthodox American Jewry, this book has neither the profundity nor the importance that its title suggests.

E. G. R. TAYLOR.

THE STUDY OF THE HISTORY OF SCIENCE. By GEORGE SARTON. *Harvard Univ. Press, Cambridge, Mass.*, 1936. pp. 75. \$1.50.

SCIENCE IN ANTIQUITY. By BENJAMIN FARRINGTON. *Thornton, Butterworth* (Home University Library), 1936. pp. 257. 2s 6d.

Dr Sarton is well known as a pioneer in a subject that is still almost unrecognized even by the learned—the History of Science. This book is an Inaugural Lecture delivered at Harvard University where a seminary for that subject has just been established. As might be expected it contains many wise sayings, and an enunciation of first principles. The archaeologist will agree that 'the history of science must be made to begin with the fundamental inventions: language, drawing, writing, artificial fire, elementary tools, etc.' and that the inventors of these things were 'not a bit inferior' to the great inventors of

## REVIEWS

modern times. Equally true but not yet universally accepted is the theorem that 'the acquisition and systematization of positive knowledge are the only human activities which are truly cumulative and progressive'; and its corollary, that 'the history of science is the only history which can illustrate the progress of mankind. In fact, progress has no definite and unquestionable meaning in other fields than the field of science'. When these truths are accepted, the ensuing purgation of historical text-books should simplify the task of teachers; but the time is not yet. Meanwhile the present book may be heartily commended to all who wish to form their ideas; and for those who wish to go further the admirable 'critical, classified bibliography' of 16 pages will be very useful.

Professor Farrington has an excellent appreciation of the meaning, as well as of the history, of science; though of course the two are complementary. His book deals in a most enlightening manner with two standing problems—why did not the Romans discover power-mechanics? and why did the knowledge of science almost become lost at the beginning of the Christian era? Why was it that 'from the fifth to the tenth century . . . humanity went backward?' Only a superficial view attributes this decay to Christianity; 'it seems more in accordance with the truth to see in the decay of science one of the conditions for the spread of these religions [of which Christianity was one] than to see in the triumph of one of them the explanation of the decay of science'. In other words, as Professor Farrington says, 'the quest of positive knowledge . . . is essentially social; it is bound up with the practical needs of the society in which it flourishes, or decays'. The Romans had no need of power-mechanics because their social system was based upon the cheap labour of slavery; and they were succeeded by feudal lords whose serfs performed a like function. The full development and implications of these ideas are naturally beyond the scope of the present volume. Meanwhile we are grateful for a most stimulating essay. It is good to see that the Home University Library—'friend of our youth'—is still going strong. O.G.S.C.

MESOPOTAMIA : excavations on Sumerian sites. By SETON LLOYD. *Lovat Dickson*, 1936. pp. XIII, 198, 6 figs., 16 plates. 6s.

Mr Seton Lloyd, who has taken part in excavations in Mesopotamia, has undertaken to make known to a wider public the results of excavation on the chief Sumerian sites during the last fifteen years. After a technical chapter on the conditions of work in Mesopotamia—dealing with the character of the remains, means of access and method of digging—Mr Seton Lloyd passes in review the excavations of Obeid and Ur which brought to light the monuments of the first dynasty of Ur and of those which immediately preceded it; the



## ANTIQUITY

excavations of Uruk and Jemdet Nasr which have given their name to two preceding civilizations characterized by their associated pottery ; and finally the excavations of Tell Asmar and Khafaje in the Baghdad region, principally famous for their richness in remains of the early dynastic period. These discoveries are also dealt with in a special chapter, in the light of subsidiary excavations rich in pottery typical of the main sites, thus enabling a system of relative chronology to be established. The author recalls that Sir Leonard Woolley puts the beginning of the Royal Tombs a little after 3500 B.C. and the dynasty of Ur at 3100 B.C., whilst Mr Frankfort places the latter at about 2900 B.C. To the archaic historical period belong religious buildings whose plans belong to two types ; the northern type, whose entrance is in a side of the building, and the southern type where it is in its longer axis. The study of these tombs leads naturally to a description of the Royal Tombs of Ur which seem to find their analogue, so far as the practice of human sacrifice is concerned, in the oldest parts of the Y cemetery at Kish. Statuary is carefully portrayed and studied in the concluding portion of the book. Of the Akkadian period, whose structural peculiarities are described (palace of Tell Asmar), we may select for mention an admirable bronze head from Nineveh representing perhaps a monarch of the dynasty of Agade. The book is written in a good clear style and provides an accurate and useful summary of recent discoveries in Mesopotamia.

G. CONTENAU.

THE EXCAVATIONS AT TELL CHAGAR BAZAR AND AN ARCHAEOLOGICAL SURVEY OF THE HABUR REGION 1934-5. By M. E. L. MALLOWAN. *Oxford University Press*, 1936. pp. 59, 29 figs., 3 pls. (Reprinted from *Iraq*, III, part 1). 10s 6d.

The archaeological exploration of the Habur region led Mr Mallowan to study Tell Chagar Bazar, near the Wadi Hanzir, a tributary on the left bank of the Habur. The tell is about 72 km. east of Ras-el-Ain and Tell Halaf. As an outcome of these researches it is evident that the very ancient civilization of this region conforms with that of which traces have been found at Nineveh and Arpachiyah. On the old surface-line (virgin soil) is found a type of pottery closely linked with that of the deepest strata at Nineveh (which itself compares with that of Samarra) ; next above comes an important stratum more than four metres thick, containing Tell Halaf pottery. Then, with a complete absence of Obeid pottery, comes a stratum which can be assigned to the beginning of the historical period (about 3000 B.C.), in which has been found pottery comparable with that characteristic of the 5th stratum of Nineveh. It should be noted that in one of the oldest strata in which Tell Halaf pottery occurs, a copper necklace-bead has been found. The Tell Halaf period is therefore Chalcolithic.

## REVIEWS

Mr Mallowan's excavation is a valuable contribution to the study of those primitive periods whose general character is gradually becoming known with some precision.

G. CONTENAU.

FOUILLES EXÉCUTÉES À MALLIA. 2me rapporte, exploration du palais (1925-1926). *Par* FERNAND CHAPOUTIER *et* RENÉ JOLY. *Paris* : *Paul Geuthner*, 1936. *pp.* 53, 36 *plates, text-figures and plans.* 80 *francs.*

This volume is the second report of the important excavations carried out by the French School at Athens on the site of Mallia. The first appeared in 1928 and described the greater part of the west wing of the palace together with some of the northern and eastern sections. Next came the publication, in 1930, of the inscriptions already found. The present work contains the results of further explorations round the central court, and we are promised shortly a volume describing the remaining parts of the palace and another on the cemeteries which will include the celebrated 'Khrysolakkos' or 'Pit of Gold'.

The palace is near the village of Mallia and half a mile from the shore at a spot called Zgourokephalo. It is a typical Minoan site, eloquent of the peaceful conditions prevailing throughout most of the Bronze Age, the low rise on which the palace is built contrasting with the rocky eyries of the early Iron Age and the walled acropolises of the Archaic and Classical periods.

The palace as it now stands occupies an area of about 104 by 84 metres compared with the 120 by 140 of Phaistos, the 140 by 150 of Knossos and the 40 by 50 of the manor-house at Gournia. In plan it very much resembles Knossos in its west court, its central court with verandahs on two sides, the magazines and shrines on the ground floor of the western wing with evidence of state rooms above and the narrow sea-gate to the north protected by a heavily walled 'donjon'.

The east wing is not yet finally published, so that no comparison of the domestic quarters can be made.

The northern quarter has a number of unusual features, and an interesting solution of the irregular disposition of the aisles in one room is suggested by a combination of the hypostyle hall and the primitive house which gave its shape to some of the tombs at Mokhlos and Kastri. The eastern verandah, facing onto the central court, had square piers alternating with round columns on the paving, between which appears a regular row of sockets into which no doubt a grille of metal or wood was fitted. Behind the verandah lay a blank wall pierced only at the south end to give access to the row of magazines which lay to the east. These magazines have a central runnel leading to a sunken vase at the far end to collect any liquid which might be spilt from the store jars which

## ANTIQUITY

line the sides. The south façade of the central court is broken by a number of setbacks, similar to those in the west court at Knossos. The irregularity in this case inclines one to agree with the excavators that the object was to obtain a play of light and shade.

Near the south end of the west wing appeared the lower treads of an imposing staircase, to the south of which a small portico with a single column led to a raised platform with a stone bench at one end in front of which lay a circular slab of stone with a central depression surrounded by small holes. This the excavators have interpreted as a table of offerings. Sir Arthur Evans however (*Palace of Minos*, III, 392) argues with many parallels for its being a gaming board. His interpretation certainly seems the more probable and, religion and games being so inextricably connected, by no means rules out the sacred character of this area.

The architectural details are those with which we are already familiar at Knossos and elsewhere. The stones used are limestone and a local conglomerate. It is noteworthy that gypsum, which was used for facing walls and for paving in the richer palaces does not appear, and the comparative poverty of the site is shown in the more frequent use of unbaked brick for the upper courses. A local peculiarity seems to be the restriction of stone paving to the interior, open courts being paved with hard waterproof 'taratsa' which at Knossos is used only for light-wells.

The history of the site cannot be determined with certainty until further tests below the existing floors have been made. At the moment the excavators incline to the belief that the whole structure in its present form is of M.M.III date. They are willing, however to admit the presence of some structure as early as E.M.III-M.M.I. From a study of the publication it seems that more of this structure remained permanently in use than they are willing to allow. The west wing in particular with its blocks of insulae and the entrance running directly eastwards from the west court bears a strong resemblance to the west wing of the M.M.I palace at Knossos. So does the 'donjon' by the north entrance. A good deal of M.M.I pottery was found, some actually on the floors. The assumed desertion of the site in M.M.II need not trouble us. It has already been pointed out by Åberg and others that M.M.II is a style of pottery peculiar to the great palaces of central Crete and that a mature form of M.M.I pottery (M.M. 1b) continues elsewhere right down to M.M.III. M.M.II is, in fact, like L.M.II, a purely palace fabric and when found in eastern Crete must be regarded as an import. Therefore it is quite on the cards that the M.M.I palace has in a large measure survived with but slight modifications and repairs, necessary after the earthquake which preceded the opening of M.M.III. It must be remembered that it is always the latest period of occupation which leaves



## REVIEWS

most traces on the floors.\* But no doubt further tests will clear up this and other matters.

The lower limits for the palace seems to be L.M.Ia. Perhaps it suffered more than Knossos from the earthquake which occurred towards the end of that period; perhaps the concentration of power in the big cities of central Crete in L.M.Ib affected it as it affected a number of small sites. At all events it was abandoned.

The finds described in this volume are few and include nothing comparable to the magnificent broadsword or the stone axe in the shape of a leopard published in the first report. A small group of daggers and chisels and a few stone vases and lamps are the only objects save pottery. The pottery has suffered from some chemical action of the soil which has destroyed much of the paint and has in some cases left a white deposit over the whole vase. The authors speak of its close relationship with that of east Crete, but with the exception of the M.M.I vase shown on plate XI and the piece of decoration shown in figure 8, which seems to be a bastard version of a typically east Cretan motive, the rest of the pottery can be paralleled most easily in central Crete.

The volume is well produced, and the following criticisms are merely the expression of what the reviewer personally would like to see in succeeding reports.

The text seems unnecessarily long. Much of what is said can be read straight off the plans, and in the case of objects could be seen from the drawings and photographs, were the former given some scale and were the latter clear enough. It should surely be easy to include a scale on each plate or figure and to keep all the objects in the same figure to the same scale. Plates xxxi and xxxii were hardly worth including; both photography and reproduction having failed to give the details they are intended to illustrate. The drawings of vase shapes is on no consistent plan. They are done indiscriminately in line, in silhouette, and in section. If they are done at all they should conform to the system in force in England, Egypt, Palestine and Mesopotamia, whereby one half is drawn in elevation and the other in section, and, again, the scale should be the same for all, say one-sixth.

The detailed plans are good, though 'rendering' always tends to make them look fussy, and they really do illustrate the points made in the text. They might perhaps with advantage have been reduced slightly and used as text-figures. But that is always an arguable point. The general plan at the end can be opened out while reading, a very good feature; and the part of the building described in the text is coloured red.

---

\* That is why L.M. Ib is so scantily represented in the palace at Knossos. The transition to L.M. II was marked by no catastrophe to seal in the deposit and the old-fashioned vases were merely swept up and thrown away in favour of the new style.

## ANTIQUITY

The architecture and the finds are not closely enough related. True, in the brief catalogue at the end, the spot where each object was found is given. But for convenience it would have been much better to have given a brief résumé, after the description of each room or group of rooms, of the objects discovered in them with a reference if necessary to the more detailed catalogue at the end.

But these are minor points and no doubt we shall eventually be given a volume which will survey the palace as a whole. It is a pity, however, that the results up to 1931 could not have been included. The present piecemeal publication has a necessarily scrappy appearance and surely five years should be enough in which to expand the preliminary reports of the *B.C.H.*

J. D. S. PENDLEBURY.

### FOUILLES DU TÉPÉ-GIYAN PRÈS DE NÉHAVEND (1931 et 1932).

*Par* G. CONTENAU *et* R. GHIRSHMAN. Sondage du Tépé-Djamshidi ; sondage du Tépé Bad-Hora (1933) *par* R. GHIRSHMAN. Note sur les têtes osseuses *par* H. VALLOIS. *Paul Geuthner, 1935. pp. 144 and 109 plates. 150 francs.*

The antiquities of Nihavand are in a sense a by-product of castor oil and opium. This apparently strange association arises from the fact that the mountaineers of western Iran fertilize their fields with the nitrogenous soils of ancient mounds. Two thirds of the mound of Giyan had been removed by the peasants before scientific excavations were begun ; the rich earth helped the local farmers to produce the principal laxative of the West and the principal sedative of the East, and from the same earth came harvests of antiquities which eventually found their way to European markets.

Tepe Giyan lies two and half hours on horseback from Nihavand, which stands at a height of 1800 metres (about the same altitude as St. Moritz) in the last of the valleys that flank the north scarp of the mountains of Luristan. The strategic importance of the site may be gauged from the fact that in A.D. 641 Nihavand was the scene of a decisive battle as a result of which the Persian empire succumbed to the Arabs. Giyan lay on a direct route from Hamadan (Ecbatana) to Susa *via* Luristan ; further, it commanded a route to Mesopotamia *via* Kasr-i-Shirin.

When the Expedition sent out by the National Museums of France set to work, the mound stood to a height of 19 metres. Of the total accumulation the top 9 metres consisted of a series of cemeteries which could be divided into four main periods falling approximately between 1100 and 3000 B.C. The succession of graves was interrupted by two buildings with pisé walls on rough stone foundations indicating a certain lapse of time between levels 1 and 2, and again between levels 2 and 3. The bottom 10 metres contained a thick

## REVIEWS

accumulation of prehistoric debris which consisted for the most part of painted sherds of the chalcolithic period. All the graves were simple pit inhumations, without any stone construction. The principal strata from top to bottom may be summarized as follows :

1. Top 4 metres. Graves 1-63. The upper end of the stratum consisted mostly of unpainted pottery, but towards the bottom there was a considerable increase of painted pottery. The principal shapes include caliciform vases with or without handles and spouted 'tea pots'. The designs, which were in red or black paint, were chiefly geometric, but plant designs and a bird occur. Most important is a series of grey-black burnished pottery often similar in shape to the painted ware and exactly paralleled by finds in the Caucasus and at Tepe Hissar in the Elburz mountains. In grave 10 there was a bronze dagger with a hollowed handle, a well-known Luristan type; Luristan pot-forms also occur. At the top end of the stratum iron objects were found, *e.g.* parts of an iron harness: towards the bottom iron ceases to be found, and there is a bronze dagger of Caucasian type. Two important lines of evidence suggested a date for this stratum; first, at the lower end, a cylinder seal in the Kirkuk style which can be dated to *c.* 1450 B.C.; secondly a caliciform vase with a spiral design, and a silver pendant analogous to objects in the Shushinak deposit from Susa of the 12th century B.C., agree with the date suggested by the iron weapons at the top end. The late limit therefore coincides with the beginning of the iron age proper, and the earlier limit must be correlated with the Nuzi palace period (*cf.* the Kirkuk cylinders). Approximate date 1100-1400 B.C.

2. Level 4-5.5 metres. Graves 64-82. Characteristic pot forms are the caliciform vase, crateres, handled cups, and a kind of albarello. The principal designs, apart from the purely geometric, are birds and rayed suns usually applied in metopes on the upper half of the pot, the surface of which is usually of a whitish clay. The vases decorated with plain horizontal bands on a whitish ground are related by the authors to wares from the Phoenician coast said to be under Mycenaean influence: there are also parallels in eastern Syria. The same stratum contains an axe with a ribbed socket analogous to west Syrian types of the second millennium B.C. It is important to emphasize the fact that the building at the top of this stratum indicates a break between Giyan 1 and 2. The gap between Giyan 2-3 is perhaps filled by the material found in M. Ghirshman's soundings at Bad Hora and to the intermediate period between Giyan 1 and 2 we might assign the material from the top stratum at Chagar Bazar east of the Habur. Approximate date, 1400-1800 B.C.

3. Level 6-7.5 metres. Graves 83-101. This stratum is again separated from the one above it by a building which indicated a lapse of time between the two cemeteries. The lapse between Giyan 2 and 3 is further rigidly defined by



## ANTIQUITY

a very different ceramic which makes use of red clays and often of red slips with black designs. The upper portion of the vase often has a white slip, a technical characteristic which can be paralleled in Cappadocia. A distinctive type which only occurs in this stratum is a tripod vase often surmounted by small cups which adhere to the rim (*godets soudés sur leur bord*). Among other forms we may note large bellied jars with ribbed shoulders and cooking pans. The designs are exclusively geometric. A discovery in a corresponding stratum at Tepe Djamshidi helps to date Giyan 3—an axe with a reinforced convex socket that occurs in Mesopotamia in the Royal cemetery of Ur. Further there is a 'Syro-Hittite' cylinder seal analogous to specimens contemporary with Samsu-iuna, a king of the first dynasty of Babylon. The authors suggest analogies in Anatolia, the Aegean and the Balkans: in particular the Aegean kernoi and the Cappadocian pointed based cups with their white slips. Approximate date 1800-2500 B.C.

4. Level 7.5-9.5 metres. Graves 102-119. The bottom of this stratum rests directly on the prehistoric occupation levels represented by the sherd stratum 5. Giyan 4 is distinguished by the presence of large jars painted with the 'oiseaux-peignes' design, a comb surmounted at each end by a bird's head. The bird designs are sometimes superimposed in three tiers. Note also the curious 'cart-wheel' or sun designs. In general the painted pottery of this period is related to the fabrics covered by the term 'Susa 2' which includes vases with designs in a violet black paint, a degeneration of the more finely executed ware of Susa 1. This stratum also contains a socketed axe which is an early Mesopotamian type and a cylinder seal engraved with a curious ritual scene on which the authors offer no comment. Approximate date 2500-3000 B.C.

5. Level 9-19.5 metres at which depth virgin soil occurs. Graves 120-122. The three graves in this stratum were pot-burials containing the bodies of infants. Traces of *pisé* walling were discovered, and at -13.5 metres there was a wall with rough stone foundations. In general the stratum consisted of a long series of occupation levels sharply to be distinguished from the top four strata, which were for the most part cemeteries. We must presume a certain lapse of time, though not necessarily a very long one, between Giyan 4-5. The numerous painted potsherds include a variety of wares. Animal designs were common: at the bottom they tended to be naturalistic and gradually became stylized. On the earliest ware at 18-19 metres designs are in black paint on a *chamois* slip and include the Maltese Square and a strange pattern consisting of built-up lozenges with digitations, paralleled on other Iranian sites and variously interpreted as a stylized bird, a *moufflon* or the human figure. The authors suggest analogies with Anau 1: the same repertoire of designs is also found at Al 'Ubaid and on T. Halaf ware. The use of a slip and certain of the geometric

## REVIEWS

designs (*e.g.* pl. 40 no. 1) can be matched by some of the earlier T. Halaf fabrics and suggest to me that the potters of prehistoric Assyria and west Iran were in touch with one another. After 18 metres this type of slip ware disappears and from that level to the 9 metre mark we find a homogeneous series of typically Iranian fabrics. At 16 metres the earliest goat and bird designs occur, at 12 metres the earliest stylized bird designs in metopes, and at 12.6 m. there is a beaker covered with a wash of lustrous black paint and a zigzag design left as a reserve, absolutely identical in technique with some of the Susa 1 pottery. At 11.25 m. a running ibex design is executed in a manner very reminiscent of the Susa 1 dogs; at 10 m. there are leopards similar to specimens from Sialk. Finally at 9 m. there are rows of birds executed precisely in the manner of Susa 1. I would also draw special attention to the chalice illustrated on pl. xv, no. 4, found at 7.5 m., at the very top of the stratum and apparently very similar to the so-called Ninevite 5 or Billa ware; its context suggests that it belongs to the turn of Giyan 4-5 exactly where we should expect to find it. The most important evidence supplied by Giyan 5 is the appearance of Susa 1 fabrics late in the chalcolithic stratum, for it settles once and for all the approximate position in our time series of the much debated Susa 1 pottery. The earliest specimen of copper occurs at a depth of 13 m., below the Susa 1 material.

For the earliest pottery of west Iran therefore the Giyan material gives us the following sequence :—

(a) The earliest phase represented by a ware known in Elam as Susa 1 *bis* and its Mesopotamian equivalent, Al 'Ubaid ware.

(b) Uruk ware. This stage of development which occurs at Susa is not found at Giyan; but a single lugged vase in a reddish clay found at 9 metres may belong to this gap.

(c) Susa 2. One phase of that ceramic is represented by the pottery of Giyan 4 with its 'oiseaux-peignes' designs. Giyan 4 shows clearly enough that the long development of painting covered by the term Susa 2 is a natural outcome of Susa 1. A few polychrome sherds in black, red and white paint found in the middle of Giyan 4 appear to be analogous to material from Moussian and may be an imitation of Jamdat Nasr ware.

We may offer a few suggestions on certain points. The bowl shown on pl. ix, no. 3 with cross hatched running lozenges can be exactly matched by T. Halaf specimens and no. 4 of the same plate is analogous to Samarra ware—perhaps a late phase of it. Here therefore we have further indications that the early half of Giyan 5 overlaps with T. Halaf. In Giyan 3 the remarkable vases with cups round the rim, 'vases a godets', can be traced elsewhere at an earlier stage: one from Abydos said by Petrie to be just pre-Menes, decorated with animal designs in red, was clearly an import from Iran; a second vase was

## ANTIQUITY

discovered by Speiser in Gawra 6 c. 3000-2700 B.C.; the celebrated 'Fountain-head pot'. It looks therefore as if we shall eventually discover some site which will give us the ancestry of the distinctive Giyan 3 pottery.

The turn of Giyan 1-2 must I think be approximately contemporary with the last phase of Chagar Bazar where we find pottery with simple geometric designs on vase shapes that can be paralleled at Giyan, and this implies that the late phase of Hammam and related sites is also to be connected with this stage at Giyan. On pl. 35 there is an illustration of a receptacle discovered in Giyan 3: it consists of a strip of perforated bronze sheeting folded over to make a cornet 5.5 cms. high. The purpose of this object is now clear, for at Chagar Bazar similar specimens were found inside wine (?) jars and were fixed to the ends of hollowed reed syphons. The practice is also illustrated at Tell el Amarna in Egypt and the Giyan specimen seems to be the earliest example of a drinker's outfit which may have been introduced from Iran by way of Syria into Palestine and Egypt.

The approximate correctness of the sequence dating at Giyan was elucidated and confirmed by soundings made by M. Ghirshman at Djamshidi and Bad-Hora. On the former site stone cist-graves with an annexe gave further links with the Caucasus.

In an interesting note on the skulls M. Vallois says that there are no grounds for the suggestion that Iran was the cradle of the tall fair dolichocephalic peoples of northern Europe.

In conclusion it is no exaggeration to say that by their work at Giyan Dr Contenau and M. Ghirshman have between them placed the archaeology of West Iran on a scientific basis. The dating of the material from Giyan serves as a groundwork for future construction. Doubtless modifications may eventually be made and greater precision will surely be attained by future excavations; but the authors of this work will be entitled to the credit of setting all subsequent research on a sure foundation.

M. E. L. MALLOWAN.

### KLEINFUNDE AUS DEN ARCHÄISCHEN TEMPELSCHICHTEN IN

URUK. By ERNST HEINRICH. (Ausgrabung der Deutschen Forschungsgemeinschaft in Uruk-Warka, Band 1), *Berlin*, 1936. pp. 54, 38 pls.

The Germans' eight seasons of digging at Erech had yielded data of unique importance for the establishment of culture-sequences, for the history of architecture, writing, economics and science in ancient Mesopotamia. Till the sixth campaign they had not produced museum pieces comparable to those obtained by British and American expeditions from Ur, Kish, Tell Asmar and Khafaje. In 1933-4 the excavators were rewarded by uncovering a regular hoard of temple treasures in a layer satisfactorily sealed under the oldest foundations of the Early



## REVIEWS

Dynastic period. It is the objects then collected (with a few comparative specimens) that are magnificently illustrated and described here. One or two additions to the group that came to light in the next season are mentioned here but illustrated only in the *7te vorlaufige Bericht* (*Abhandl. preuss. Akad., phil-hist. Kl.*, 1935, no. 4—issued 1936).

From the character of the find and its position it may be inferred that the component objects had been consecrated to temple use and hence conserved within the sacred precincts even when they had become obsolete. Stratigraphy as well as the style of seals and the shapes of beads and vases proves that the hoard belongs to the last 'prehistoric' period in Sumer, the Jemdet Nasr phase. Dr Frankfort's latest report on Khafaje (*Oriental Institute Communications*, no. 20) provides confirmation, since he found pendants, precisely like those from the hoard, in Sin Temple VI, securely dated to Jemdet Nasr times. But the hoard from Erech here published gives the clearest and fullest information yet available as to the artistic and technical capacity and the scientific and economic equipment of Mesopotamian peoples in that period.

The hoard includes a great 'alabaster' vase, over a metre high, adorned with three tiers of bas-reliefs depicting a cult scene, servants with offerings and a flock (illustrated with two photographs of the original, three of a cast and a sketched development), five stone libation-vases with side spouts, one decorated with animals in full relief, the others with inlays on bitumen; a shapely silver ewer; fifty pendants (2 to 6 cm. long) in the form of sheep, calves, and other beasts, very faithfully modelled in stone, shell or metal; three larger carvings of sheep that had served as supports for some object, like the Early Dynastic toad from Kish that supports a candlestick; nine cylinder seals; a variety of beads and a mass of miscellaneous fragments. The bas-reliefs and the little animal figures are very perfectly executed. The representations of animals in particular are so true to life that Hilzheimer can recognize the precise species depicted. Some of the cylinders depicting cult-scenes are also very lively though less naturalistic than the glyptic of the preceding Uruk epoch. From the cult-scene on the big vase we can infer the existence of full-size statues of rams and anthropomorphic statuettes about half-size or at least on the scale of the Early Dynastic idols from Tell Asmar.

The metal worker employed copper, gold and silver. To facilitate the casting of the fine lion amulet on plate 13 he had added some 9% of lead to the copper (which contains nickel as an impurity as usual in Sumer, but no tin). The narrow-necked side-spouted jars were usually made in four pieces; the bodies were turned in two halves to fit exactly and stuck together with bitumen, sometimes supplemented with copper rivets; necks and spouts, fashioned separately, were fitted into prepared holes and again cemented with bitumen. The joint

## ANTIQUITY

was masked by a mother-of-pearl inlay on the bitumen. However, the body of one such vase in 'hard grey stone' and of the carved example seem to have been made in one piece—a difficult feat about which more details might have been given. The shapes are familiar from Jemdet Nasr ceramics; the moulded and undercut rims illustrate the lithic origin of this device in the pottery copies. European archaeologists will be interested by the use of 'v-perforation' in making attachments for heavy inlays. Pendant w 14819n is a miniature polished stone axe-head, but, unlike European axe-amulets, the perforation is close to the blade.

Lapis lazuli was already being imported and used for seals and other objects. There was even a vase made either of lapis or of a 'synthetic lapis' of coloured clay which would be still more exciting; an analysis of the fragment is to be desired. In any case lapis was common enough to prove frequent intercourse with the Iranian plateau. A few beads were made of green feldspar or Amazonite which may have been brought from still further afield. Hilzheimer's appendix on the animals is a valuable contribution to Mesopotamian economics. The most striking point is the recognition of tame hairy sheep as well as woolly and wild species. The hairy sheep (Hilzheimer terms them *Hausmähnenschafe* to distinguish them from the 'Barbary sheep' which Germans call *Mähnenschafe* and which are not really sheep at all) have long been familiar from Egypt, but in Mesopotamia are represented only on documents of the Jemdet Nasr period. Particularly intimate connexions with Egypt about that time are indicated by the astounding similarity between a basalt stele found at Erech in 1932-3 and the Late Predynastic knife-handle from Jebel-el-Arak. Like the subject depicted on the knife-handle, the hairy sheep are of course Asiatic.\*

The plates it may be noted are quite exceptionally clear, but the vase, showing an architectural subject on plate 25, is topsyturvy. The book is as essential for those interested in the origins of domestic animals as to students of Oriental history, art and religion.

V. G. CHILDE.

---

\* See Dr Hilzheimer's article in *ANTIQUITY*, June 1936, p. 195.

# Index

- Abasa, mosque (*illus.*), 319  
 Abercorn, cross, 469  
 Aberlady, cross-shaft (*illus.*), 469, 471  
 Aberlemno, cross-slab, 471  
 Abernethy, cross-slab, 471  
 Abiram, sarcophagus, 277  
 Abydos, temple of Sethos, 242-3  
 Adal, kingdom, 326  
 Adalia, walls, 466  
 Aghresalam, obsidian flakes, 354  
 Aichbühl, neolithic village, 498-9  
 Air photographs :—  
     Amud (Somaliland), 320 (pl. 1)  
     Avebury, 385  
     Bullington priory, 216  
     Turf-cut cross, Whiteleaf Hill, 104  
     Umm el-Jamal, 456  
 Alchemy, diffusion, 26, 27  
 Alexandria, trade, 26, 27  
 Alexius III, emperor, 467  
 Alfalfa, 10  
*Allée couverte*, first use, 184  
 Allen, G. W. G., 385  
     Romilly, 469  
 Almagia (Professor), 486  
 Alphabet, ceremony of the, 261  
     Origin (*illus.*), 359-60  
 Alunda, rock-engraving, 65 (pl. viii)  
 Amenemhat III, head, 176 (pl. v), 180  
 Amenophis IV, head, 176 (pl. vi), 180  
 Amphipolis, 479  
 Amri culture, 351  
 AMSCHLER, W.; Goats from Ur and Kish  
     (*illus.*), 226-8  
 Amud (Somaliland), 316, 317, 319, 320  
     (*air-ph.*), 321  
 Anaitis, goddess, 73, 78  
 Anderson, J., 186  
 Andronicus II, emperor, 467  
 Angers, church of St. Martin (*plans*), 400-8  
 Angista, river, 479  
 Anglian school of carving, 473  
 Anglo-Saxon pottery (*illus.*), 389-99  
 ANGUS, W. S.; Battlefield of Brunanburh  
     (*map*), 283-93  
 Ani, 466  
 Antioch, 9  
 Antiochia Margiana, 9  
 Aqueduct, Jerwan, 125-6  
 Arab map of Britain (*illus.*), 341-2  
 Archaeology (1720-1820), 31-8  
     Institute, 486  
     Lighter side, 80-6  
     Organization, 3  
     Prehistoric, 152-61  
     Research, 257-60  
 Arctic, rock art, 56, 68, 69  
 Ari thè Wise, 287, 288  
 ARKELL, A. J.; Cambay beads, 106-7  
 Armenia, monoliths, 122, 123  
 Arminghall, timber monument, 4  
 Arrow sacrifice, 313, 314  
 Asbestos, 25, 26, 27  
 Ashmolean museum, Anglo-Saxon urns,  
     392, 395, 396  
 Åskollen, rock-engravings (*illus.*), 58, 60  
 Athelstan (king), 283, 286, 287, 289, 290,  
     291, 292, 293  
 Attcross, Henry, 100  
 Avebury, discoverer, 386  
     Kennet avenue, 448  
     Lava found, 150  
     Preservation (*illus.*), 385-6, 490-3  
 Avignon, bas-relief (*illus.*), 480-2  
 Au Boba, tomb of sheik (*illus.*), 319  
 Aubrey, John, 33, 386, 491  
 Aunjetitz culture, 114  
 Austin, R. G., 174, 461  
 Axe, bronze flanged (*illus.*), 95-6, 132  
     Burj Hama, 220, 221  
     Factory, Graig Lwyd, 485  
     Head, Alunda (*illus.*), 68  
     Maiden Castle, 451  
     Manio, Brittany, 445, 446  
     Socketed (*illus.*), 5, 7-8  
 Aztec dance, 313



# ANTIQUITY

- Bactra, 9  
 Bactria, 11, 17  
 Badshot (Surrey), barrow, 455  
 Baking-oven, Chile (*illus.*), 355-6  
 Balkh, 9  
 Banitsa, 479  
 Bardal, rock-engraving, 57, 67  
 Barium beads (*illus.*), 18, 19  
 Barlockhart loch, quern (*illus.*), 147-8  
 Barnwell, —, 184, 195  
 Barrows :—  
     Badshot, 455  
     Brittany (*illus.*), 441-55  
     Durrington, 455  
     Eyford, 453  
     Lyneham, 455  
     Notgrove, 453, 455  
     Thickthorn, 455  
     Uley, 453  
     West Kennet, 453  
     Wexcombe, 455  
 Bas-relief, Avignon (*illus.*), 480-2  
 Baynes, Neil, 196  
 Beads, 16, 17, 18  
     Cambay, 105-7  
     Chinese (*illus.*), 18-20  
     Eyford, 453  
     Glass, 16, 17  
     Hembury, 450, 455  
     Mezek, 302  
     Notgrove, 453  
     Somaliland, 321  
     Steatite, Hembury, 450  
     Tepe Gawra, 131  
 Beakers, bell, 115  
     Breton, 448  
 Beck, Horace, 15, 16, 17, 18, 321  
 Bee-hive tombs, Mezek (*illus.*), 300-5  
 Bernicia, kingdom, 290  
 Bersu, Gerhard, 468  
 Bertrand, Alexandre, 184  
 Beverley, 286, 287  
 Bigbury, hill-fort, 105  
 Birrens, 292, 293  
 Bit-Adini, Aramaean state, 328  
 Bitumen, 256  
 Blackmore, William, 38  
 Blaen-waun, cottage (*illus.*), 434, 435, 440  
 Blair, Robert, 36  
 Blatobulgium, Roman fort, 292  
 Bledlow, turf-cut cross, 100-4  
 Bodhisattva, painting (*illus.*), 24  
 Bodleian Library, early maps (*illus.*), 486-9  
 Bogge, rock-engravings, 58  
 Böla, rock-engravings, 64  
 Bonstetten, C. V. de, 184  
 Borlase, William, 33, 34, 184, 190  
 Bosch-Gimpera, P., 185  
 Bottle, Anatolian (*illus.*), 482-3  
 Bourton on the Water, quern, 137  
 Bow stones (*illus.*), 294, 296, 298  
 Bowl, Babylonian, 130  
 Bowles, William Lisle, 36  
 Brailsford, cross, 298  
 Braunholz, H. J., 327  
 Breast-plate, Mezek (*illus.*), 302  
 BRET, G. ; Excavations at Byzantium  
     (*plan*), 356-9  
 Breuil, Abbé, 210  
 Bridge in Thrace (*illus.*), 479-80  
 Brighthampton, Anglo-Saxon urns (*illus.*),  
     391  
 Britain, Arab map (*illus.*), 341-2  
 Brittany, long barrows (*illus.*), 441-55  
 Brögger, A. W., 159  
 Bromborough, 285, 289  
 Bronze Age, 114, 115, 116  
     Bowl, Vounous (*illus.*), 356  
     Necropolis, Vounous, 356  
     Rock art, 68  
 Bronzes, Chinese, 252-3  
 BROWN, F. MARTIN ; Dendrochronology  
     (*illus.*), 409-26  
 Brunanburh, battlefield (*map*), 283-93  
 Bulgaria, antiquities, 387-8  
 Bullington priory (*illus.*), 213-18  
 Bunt, C. G. E., 278  
 BURIAL CHAMBERS :—  
     Distribution-maps, 187, 189, 191  
     Terms used, 184, 185  
     Addington, 190  
     Bachwen, 194  
     Ballynageragh, 198  
     Barclodiad y Gawres, 190, 197  
     Bodowyr, 194  
     Brane (Sancreed), 190

# INDEX

## BURIAL CHAMBERS, *continued*:—

Bridestones, 190, 198  
 Bron-y-Foel Isaf, 199  
 Broomhill Burrows, 195  
 Browndod, 184  
 Bryn Celli Ddu, 190, 196, 197  
 Bryn yr Hen Bobl, 194, 199  
 Burj Hama (*illus.*), 220-1  
 Capel Garmon, 192  
 Carn B'an, 184  
 Carneddau Hengwm, 192  
 Carn Gilfach, 194  
 Carn Gluze, 190  
 Carn Llidi, 194  
 Carn Lllys, 195  
 Carn Turne, 194, 198  
 Carn Wnda, 194  
 Cefn Bryn (Arthur's stone), 194  
 Cefn Isaf, 194  
 Cerrig Atgof, 194  
 Cerrig y Gof, 194, 199  
 Chapel Carn Brea, 190  
 Chestnuts, Addington, 190  
 Chun, 193, 199  
 Cist Cerrig, 194  
 Coldrum, 188, 190  
 Corringdon Ball, 199  
 Cors-y-Gedol, 199  
 Cunha Baixa, 184  
 Devil's Den, Clatford, 188  
 Dindryfol, 190  
 Drewsteignton, 195  
 Dyffryn (*illus.*), 194, 197, 198, 199  
 Ebenezer, 194, 196  
 Falköping, 184  
 Five Wells, 192  
 Four Crosses, 194  
 Gatcombe Lodge, 186  
 Gaulstown, 198  
 Glyn, 194  
 Gop, 194  
 Grah-niol, 455  
 Greenlow, 192  
 Grey Mare and Colts, 193, 194, 198, 199  
 Gwern Einion, 194  
 Gwernvale, 188  
 Hanging Stone, Burton, 192, 193  
 Hellstone (Portisham), 195

## BURIAL CHAMBERS, *continued* :—

Hen Drefor, 190  
 Hendre Waelod, 194  
 Hoar stone, 188  
 Hoy, 350  
 Kelly's cave, Cong, 348-50  
 Kercado, 184  
 Keriaval (*plan*), 454, 455  
 Kerlescant, 184  
 Kits Coty, 186, 188, 190  
 Knockeen, 198  
 La Boixe, 87  
 La Halliade, 184  
 Lanyon Quoit, 195, 199  
 Llanboidy, 196  
 Llangyndeirne mountain, 194  
 Llanrian, 192  
 Llech y Drybedd, 195, 196  
 Lligwy, 194  
 Longhouse type, 192, 193 (*illus.*)  
 Lozengrad, 303  
 Maes y Facrell, 194, 199  
 Manio, Brittany (*illus.*), 442-7  
 Manorbier, 194  
 Manton Down, 186  
 Mezek (*illus.*), 300-5  
 Mininglow South, 192  
 Mountain, 195  
 Mulfra, 193  
 Myndd Cefn Amlwch, 195  
 New Grange, 184  
 Newport, 196  
 Pant y Saer, 192, 194  
 Pawton, 193  
 Penarth, 194  
 Penbont, 194  
 Pendarves Park, 195  
 Pendine Head, 194, 199  
 Pennance, 190  
 Penrhiw (*illus.*), 194, 196, 197  
 Pentre Ifan, 194, 198  
 Pentyrch, 188  
 Plas Newydd, 190, 192, 193 (*illus.*)  
 Presaddfed, 192, 193 (*illus.*), 197  
 Randwick, 186  
 Rhiw, 192  
 Roe Wen, 194  
 Roe Wen North, 199

## ANTIQUITY

### BURIAL CHAMBERS, *continued* :—

- Rondossec III, 190
- St. Kevin's bed, Glendalough, 350
- Scilly, 190
- Sling, 194
- South Uist (*illus.*), 96-9
- Sweyne's Houses, 199
- Til-Barsib, 335-6
- Tinkinswood, 186
- Trecastle Bay, 190
- Treen, 190
- Treffynnon, 194, 196
- Trefignath, 190, 198
- Tregaseal, 190
- Tregiffean Vean, 190
- Trethevy, 193, 198
- Tyddyn Bleiddyn, 192
- Ty Mawr, 195
- Vounous, Cyprus (*illus.*), 356
- West Kennet, 192
- Whispering Knights, 188
- Ystum-cegid-isaf, 190
- Zennor (*illus.*), 193, 197, 198
- Burj Hama, megaliths (*illus.*), 220-1
- Burnswark, 285, 289-93
- Butler, H. C., 460
- Byblos, Phenician script, 277
- Byng, John, Viscount Torrington, 32, 33
- Byzantium, Chinese accounts, 23, 24
  - Excavations (*plan*), 356-9
- Cailliaud, F., 230
- Cairns, Brittany (*illus.*), 441-52, 455
  - Strathearn, 387
- Caistor-by-Norwich, cemetery, 392
- Calleva, 104-5
- Calleva Atrebatum, 104
- Calleva Cantiacorum, 105
- Cambrian Archaeological Association, 37
- Cambridge, Anglo-Saxon urns (*illus.*), 391-9
- Camp, West Wickham (*plan*), 132, 223-5
- Candelabrum, Mezek (*illus.*), 302
- Canterbury, 105
- Capra girgentana*, 228
- Capra prisca*, 226, 227
- Carn-deifog-fach, cottage (*illus.*), 428, 430, 435, 438, 440
- Carn-deifog-isaf, cottage (*illus.*), 434, 435, 437, 440
- CASSON, S.; Bridge in Thrace (*illus.*), 479-80
- Castellic, pottery (*illus.*), 451, 452
- Castlecary (Scotland), quern (*illus.*), 147, 148
- Castles, 368-70
- Causewayed settlements, 210-12
- Cave, C. J. P., 278, 282
- Cave drawings, 262, 263, 264
  - Cong, 348-50
  - Life in Britain (*illus.*), 219-20
- Caves, Jura (*illus.*), 478
- Cavro, Lucien, 332
- Celadon ware, 316, 318, 320
- Celt, socketed (*illus.*), 5, 7-8
- Cemetery, Til-Barsib, 335-6
  - Urns found, 392
  - Vounous, 356
  - Wester Wanna, 399
- Ceolfrið, abbot of Wearmouth, 473
- Chalice of Antioch, 124-5
- Ch'ang An, 9, 21
- Chang Ch'ien, Chinese general, 10, 11, 12
- Chauvet, Gustave, 87
- Chester-le-Street, 286
- Chicksands, Gilbertine priory, 214
- CHILDE, V. G., 151, 154, 160
  - Flanged axe from Greece (*illus.*), 95-6
  - Indus civilization, 351
  - Symposium on early man, 351-2
- Chile, baking-oven (*illus.*), 355-6
- Chiltern crosses (*illus.*), 100-4
- China, civilization (*illus.*), 5-30, 254-5
  - Paper first used in, 29
  - Porcelain (*illus.*), 22, 23
  - Printing (*illus.*), 29, 30
  - Time-chart, 5-6
- Ch'in Shih Huang Ti, emperor, 27
- Chotcho, frescoes, 22
- Chronology, application, 152-3
  - China and Near East, 5-6
- Chun fort, 210
- Cilicia, iron-smelting, 222
- Cissbury, quern (*illus.*), 145, 146
- CLARK, J. G. D., 4
  - Bronze flanged axe (*illus.*), 132
  - Mesolithic pit-dwellings (*illus.*), 476-8
  - Scandinavian rock-engravings, 56-69



# INDEX

Clark, Kenneth, 32, 34, 35  
 Claudius Gothicus, 465  
 Clifford, E. H. M., 315  
 Clynnog, sacred boulder, 218  
 Cnut, 279, 282  
 Coins, hoards, 39-43  
     Somaliland, 322, 326  
 Coleraine hoard (*illus.*), 39-45  
 Collinge (Dr.), 473  
 Collingwood, W. G., 470  
 Columba (Saint), 478  
 Commius, 104, 105  
 Comnenus, Manuel, emperor, 464, 467  
 Cong, Kelly's cave, 348-50  
 Constable, W. G., 15  
 Constantine the Great, 461  
 Constantine II, king of Scots, 283, 286, 289,  
     290, 292  
 Constantinople, *see* ISTANBUL  
 Coppo, Pietro, maps of, 486  
 Coptic language, 129  
 Corinth, 254  
 Corret, T. M. de la Tour d'Auvergne, 183,  
     184  
 Cottages, Pembrokeshire (*illus.*), 427-40  
 Cranganore, Indian port, 8  
 CRAWFORD, O. G. S., 94, 159, 186, 188, 196,  
     199, 445  
     Causewayed settlements, 210-12  
     Christianity and paganism, 218-19  
     *History of Science*, 31  
     Pile-houses, Yugoslavia (*illus.*), 340-1  
     Pots and culture (*illus.*), 342-4  
     Vine-scroll in Scotland (*illus.*), 469-73  
 Crested Quetzal, 310  
 Crieff, cross-slab, 471  
 Crofts, peasant (*illus.*), 427-40  
 CROSSES, turf-cut (*illus.*), 100-4  
     Vine-scroll ornament (*illus.*), 469-73  
     Abercorn, 469  
     Aberlady (*illus.*), 469, 471  
     Aberlemno, 471  
     Abernethy, 471  
     Brailsford, 298  
     Crieff, 471  
     Dacre, 471  
     Disley, 298  
     Forres, 470

## CROSSES, *continued*:—

Hilton of Cadboll (*illus.*), 469-70  
 Hoddom, 469  
 Ilam, 298  
 Ilkley, 471  
 Jedburgh, 469  
 Leek, 298  
 Morham, 469  
 Mugdrum, 470  
 St. Vigeans (*illus.*), 471  
 Sandbach, 299  
 Tarbat, 469, 470  
 York (*illus.*), 470  
 Crouche, Henry atte, 100  
 Crowfoot (Mrs), 212  
 Crowther-Beynon, V. B., 391, 399  
 Cullis, C. G., 19  
 Cunnington, B. H., 210  
     Mrs, 150, 210  
 CURLE, A. T.; Carved stones, British Somali-  
     land (*illus.*), 352-4  
     Ruined towns of Somaliland (*illus.*),  
     315-27  
 CURWEN, E. C.; Calleva of Eppillus, 104-5  
     Lighter side of archaeology, 80-6  
     Querns (*illus.*), 133-51  
     *Tribulum*-flint from Sussex (*illus.*), 93-4  
 Curwen, H. B., 151  
 Cwm-ceiliog, cottage (*illus.*), 435, 440  
 Cwm-giâr, cottage (*illus.*), 428, 440  
 Cyprus, 250-2, 356  
 Cyrus of Panopolis, 462  
 Dacre, carved stone, 471  
 Dagger (Hyksos), inscribed (*illus.*), 359-60  
 Dallaway, J., 468  
 Dalmalling, Gilbertine convent, 214  
 Damascus, mosaics, 332  
 DANIEL, GLYN; 'Dolmens' of Southern  
     Britain (*illus.*), 183-200  
 Déchelette, Joseph, 184  
 Demeter, sanctuary, 129  
 Dendrochronology (*illus.*), 3, 409-26  
 Denmark, iron age houses (*illus.*), 162-73  
 Determinatives in early script, 272  
 Devizes museum, 38, 137  
 Diamond valley (China), legend, 24-5  
 Digby, Adrian, 327

# ANTIQUITY

- Dime, excavations, 253  
Diodorus of Sicily, *on* Sculpture (*illus.*), 344-8  
Diodotus, king of Bactria, 11  
Disley, cross, 298  
Distribution maps :—  
    Burial-chambers, 187, 189, 191  
    Rock-engravings, Scandinavia, 61  
    Vine-scroll, Scotland, 472  
Dolmens, classification, 184-6  
Earthfast types, 194  
Etymology of term, 183-4, 300  
Longhouse type (*illus.*), 192, 194, 195  
Southern Britain (*illus.*), 183-200  
South Uist (*illus.*), 96-9  
Zennor type, 192-200 (*illus.*)  
    *See also* BURIAL CHAMBERS  
Dorchester museum, 38  
Douglass, A. E., 409, 410, 424  
Drabeskos, 479  
Drama (Thrace), 479  
Drew, C. D., 4  
Drosten stone, 471  
Druids, 32, 34, 35  
Drust, son of Constantine, 471  
Dupplin, carved cross, 471  
Durovernum Cantiacorum, 105  
Durrington barrow, 455  
Dyer, John, 34  
  
Earth-lodge, Omaha (*illus.*), 88  
East Shefford, Anglo-Saxon urns (*illus.*), 393, 394  
Ecbatana, 9  
Editorial notes, 1, 257, 385  
Edrisi (Idrisi), geographer, 341, 342  
EDWARDES, H. S. W. ; Cambay beads, 105-6  
Edwards, A. J. H., 473  
Egil's Saga, 287, 288, 289, 290, 291  
Egypt, iron smelting, 222-3  
    Portrait sculpture (*illus.*), 174-82  
    Sculpture, 344-6, 348  
    Time chart, 5-6  
    Writing in (*illus.*), 264-77  
Eik, 317, 318, 326  
Eil Humo, 318, 326  
Ekeberg, rock-engravings (*illus.*), 58, 60  
Eleutherae, castle, 480  
  
Elixir Vitae, 26, 27, 28  
Enamels, Spanish, 364-6  
Epiphanius, bishop of Constantia, 25  
Eppillus, Belgian prince, 104  
Erech, excavations, 510-12  
    Inscribed tablets (*illus.*), 267, 268, 271, 274  
Eric Bloodaxe, 287, 288  
Ethiopia, invasion, 326  
Eumorfopoulos, G., 15  
Evans, Estyn, 186  
EXCAVATIONS :—  
    Aichbühl, 498-9  
    Burj Hama (*illus.*), 220-1  
    Byzantium (*plan*), 356-9  
    Corinth, 254  
    Erech, 510-12  
    Mallia, 503-6  
    Mesopotamia, 501-2  
    Mezek, 300-5  
    Minturnae, 112-13  
    Swanscombe, 483  
    Tell el-Duweir, 359  
    Tepe Giyan, 506-10  
    Thermi, 123-4  
    Til-Barsib (*illus.*), 328-39  
    Vounous (Cyprus), 356  
Eyford barrow, 453  
  
Falkenstein (Dr), 268, 269, 271  
Farnham (Surrey), pit-dwellings (*illus.*), 476-8  
Federsee, 497  
Fendoch, Roman fort, 386  
Ferghana, 10  
Fergusson, James, 188  
Ffynnon-goy-isaf, cottage (*illus.*), 428, 434, 437, 440  
Ffynnon-goy-uchaf, cottage (*illus.*), 428  
Field-archaeology, 32, 33  
Fifield Bavant, quern (*illus.*), 141  
Fiji, sacrificial stone (*illus.*), 219  
FILOV, B. ; Bee-hive tombs of Mezek (*illus.*), 300-5  
Fire-place, iron age (*illus.*), 165  
Fish, monoliths representing, 122, 123  
Fitaurari Tessama Banti, 315  
Fjone, rock-engraving (*illus.*), 65, 66  
Fleure, H. J., 186

# INDEX

- Flint, *tribulum* (*illus.*), 93-4  
 Flint-knapping (*illus.*), 201-7  
 Flying game, Mexico (*illus.*), 306-14  
 Folk-lore, megalithic, 117-19  
 Forde, Daryll, 186, 441  
 Forbes, carved cross, 470  
 Forselv, rock-engravings, 60, 62  
 FORSYTH, G. H. ; Church of St. Martin at Angers (*plans*), 400-8  
 Fosna culture, 68  
 Foucher, Alfred, 70  
 FOX, SIR CYRIL ; Peasant crofts in north Pembrokeshire (*illus.*), 427-40  
 Fulk II, 408  
 Fulk III, 400  
 Fu Lin (Byzantium), 23, 24, 25  
 Funerary offerings (*illus.*), 354-5  
 Fykanvatn, rock-engravings (*illus.*), 57, 59  
  
 Gadd, C. J., 267, 268  
 Gaffikin (Miss), 186  
 Gallery-graves, 184, 185  
 GALLOP, RODNEY ; Mexican Indian flying game (*illus.*), 306-14  
 Gandhara, mother-goddess (*illus.*), 70-9  
 Gärde, rock-engraving (*illus.*), 59, 60, 62  
 Gardiner, Alan H., 264  
     Origin of our alphabet (*illus.*), 359-60  
 Garn farmhouse, Llanychaer, 436  
 Gaster, T. H., 277  
 Gastrikland, rock-engraving (*illus.*), 65 (pl. VIII)  
 Gatcombe barrow, 455  
 Gem trade, China, 24, 25  
 Gilbert (Saint), 213  
 Gilbertine Order, 213-17  
 Gilpin, William, 33  
 Ginderup, iron-age village, 167, 168  
 Girgenti, spiral-horned goat, 227  
 Girton (Cambridge), Anglo-Saxon urns (*illus.*), 391-3, 395-9  
 Gjeithus, rock-engravings (*illus.*), 58, 64  
 Glass, 'Arab', 16  
     Early pieces, 16  
     Manufacture in China, 17, 18  
     Trade, 15-16  
     Vessels, Somaliland, 320, 321, 323  
 Glastonbury, querns (*illus.*), 140, 141, 145  
  
 Glendalough, St. Kevin's bed, 350  
 Glösa, rock-engravings (*illus.*), 58, 60, 63, 64, 67  
 Goats from Ur and Kish (*illus.*), 226-8  
 Goddard, E. H., 188  
 Gogmagog hills, 104  
 Gold, assuring immortality, 27, 28  
     Ornaments, Mezek (*illus.*), 302  
     Payments for silk, 13, 15  
 GORDON, D. H. ; Megalithic site, Burj Hama (*illus.*), 220-1  
     Mother-goddess of Gandhara (*illus.*), 70-9  
 Gowland, E. W., 184  
 Graig Lwyd, axe factory, 485  
 Grain-rubbers (*illus.*), 134-5  
 Gray, Thomas, 34  
 'Green Head', sculpture (*illus.*), 182  
 Grimes, W. F., 4, 186, 196, 199  
 Guatemala, flying game, 314  
 Gun-flints (*illus.*), 201-7  
 Guy, P. L. O., 213  
  
 HADCOCK, R. N. ; Bullington priory (*illus.*), 213-18  
 Hadrian's wall, 111-12  
 Hager, Joseph, 9  
 Hall, H. R., 181  
 Hamadan, 9  
 Hamburg, Anglo-Saxon urn (*illus.*), 398-9  
 Ham Hill, querns (*illus.*), 141, 142  
 Hand-mills, *see* QUERNS  
 Han Ming Ti, emperor of China, 12  
 Harada, Jiro, 16  
 Harappa culture, 351  
 Harar, 352, 354  
 Hariti, goddess (*illus.*), 72, 73  
 Harlyn Bay, sacred boulder, 218  
 Harrison, Chancellor F., 280  
 Harvey, —, 36  
 Hassocks, quern (*illus.*), 143  
 HATT, GUDMUND, 135  
     Dwelling-houses in Jutland in the iron age (*illus.*), 162-73  
 Haury, Emil, 410  
 Haverfield, Francis John, 37  
 Hawkes, J., 449, 450, 451, 453  
 Hearne, E. J. F., 93  
 Hearth, Mariesminde (*illus.*), 166



# ANTIQUITY

- Hecatompylos, 9  
 Hell, rock-engravings, 58, 60  
 Hellenistic design on ceramics, 23  
 Hembury fort, pottery, 450  
 Hemiun (Prince), Colossus of, 176 (pl. 1), 178, 179  
 HEMP, W. J., 190, 194  
     Rock-cut tombs, Ireland, 348-50  
 Hencken, H. O'N., 190  
 Herat, former name, 11  
 Herirat, carved stones (*illus.*), 352-4  
 Heworth cemetery, 392  
 Hieratic script (*illus.*), 269  
 Hieroglyphics, beginnings, 264-7  
 Higgins, Godfrey, 36  
 Hilton of Cadboll, carved slab (*illus.*), 469-70  
 Hinba, 478  
 Hinks, R., 16  
 Hoards, coin, 41, 42  
     Coleraine (*illus.*), 39-45  
 Hoare, Sir Richard Colt, 35, 36  
 Hobson, R. L., 15, 327  
 Hoddum, crosses, 469  
 Hogarth, D. G., 328, 344  
 Hogg, A. H. A., 132  
     and B. H. St. J. O'NEIL; Causewayed earthwork in West Kent (*plan*), 223-5  
 Hogg, R., 151  
 Hook-swinging, 314  
 HOOKE, S. H.; Early history of writing (*illus.*), 261-77  
 Horns :—  
     Ain, Chartreuse de Portes, 281  
     Angers, musée St. Jean, 281  
     Arles, 281  
     Berlin, Kaiser-Friedrich museum, 281  
     Bruce (Ailesbury), 281  
     of tenure, 279, 282  
     of Ulph (*illus.*), 278-82  
     of St. Blasius, 281  
     of St. Norbert, 281  
     Prague Treasury, 281  
     Pusey, 279  
     Saragossa, 281  
     Victoria and Albert museum, 281  
     Vienna, Kunsthistorisches museum, 281  
 Horse, Iranian, 10, 11, 12  
 HORSFIELD, G.; Umm el-Jamal (*illus.*), 456-60  
 Houses, iron age (*illus.*), 162-73  
     Somaliland (*plans*), 316-19  
 Hoy, rock-cut tomb, 350  
 Hsiung Nu, nomads, 10, 11, 12  
 Hudson, G. F., 9  
 Huehuetlilla, 312  
 Huleh lake, mat-makers, 212-13.  
 Hulme, E. W., 93  
     Iron-smelting with lake- and bog- iron ores, 221-2  
 Human remains, Swanscombe, 483  
 Hunsbury, querns, 142, 148  
 Hutton, William, 33  
 Ideograms (*illus.*), 270-6  
 Ilam, cross, 298  
 Ilkley, cross, 471  
 Immortality, aids to secure, 26-28  
 Indus civilization, 351  
 Ingots, Coleraine hoard (*illus.*), 43-4  
 Inscription to Persephone, 129  
     Hyksos period (*illus.*), 359-60  
 Institute of Archaeology, 486  
 Ireland, archaeology, 494-5  
     Rock-cut tombs, 348-50  
 Iron age, dwelling houses (*illus.*), 162-73  
     Founding, England, 245  
     Smelting, 221-3  
 Issedon Scythica, 9  
 Italy, Roman, 361-4  
 Iver, quern (*illus.*), 143  
 Jade, virtue and use, 27, 28  
 Japan, civilization, 5  
     Printing in, 29  
 Jedburgh, cross, 469  
 Jerwan, aqueduct, 125-6  
 Jhukar culture, 351  
 Joyce, T. A., 9  
 Juego de los Voladores (*illus.*), 306-14  
 Jura, caves (*illus.*), 478  
 Jutland, iron age dwellings (*illus.*), 162-73  
 Kait Bey, sultan of Egypt, 322  
 Kandahar, former name, 11  
 Kashgar, 9

# INDEX

- Ka-statues, 175  
 KEILLER, Alexander, 150  
     Petrological analysis, 484-5  
 Kemble, J. M., 389  
 KENDRICK, T. D., 32, 34, 299  
     Coleraine hoard, 44-45  
     Horn of Ulph (*illus.*), 278-82  
 Kenneth Macalpin, 473  
 Keriaval, chambered cairn (*plan*), 454  
 Kevin (Saint), 350  
 Khalepye (Kiev), causewayed settlement,  
     210, 211  
 King, W. A. H., 16, 327  
 Kingbarrow, quern (*illus.*), 141  
 Kish, goat-horn (*illus.*), 228  
     Pictorial tablets (*illus.*), 267, 275  
 Klubba, rock-engravings, 56  
 Knap Hill, causewayed settlement, 210  
 Knapping (flint), 201-7  
 Knife, slate (*illus.*), 68  
 KNOWLES, SIR F. H. S., and A. S. BARNES ;  
     Gun-flints (*illus.*), 201-7  
 Kōmio, empress, 16  
 Komsa culture, 68  
 Krickeberg, Walter, 313  
 Kuninaga, Utagawa, colour-print by (*illus.*),  
 Kurt-Kale, *see* MEZEK [229-33]  
 Kuvera, goddess (*illus.*), 72, 73  
 Kyme, Simon de, 213  
     Walter de, 213  
  
 La Boixe, tumuli, 87  
 Lachish, 359  
 Lackford, Anglo-Saxon urn (*illus.*), 391  
 Lamp, Qorgab, 320, 321  
 Lanchow, 9  
 Landverk, rock-engravings (*illus.*), 59, 60, 63,  
     64, 67  
 Lapis lazuli, 8  
 Larsson, Theodore, 212  
 Lava, Niedermendig, 150  
 Lebna Dengel, king of Ethiopia, 325, 326  
 Leeds, E. T., 185, 210  
 Leek, cross, 298  
 Legetmeier, P. A., 106  
 Leiknes, rock-engravings (*illus.*), 56-57, 64  
 Le Rouzic, Z., 184, 443, 444  
 Lietzmann, H., 461  
  
 Llain-wen-isaf, cottage (*illus.*), 428, 430-3,  
     435, 439, 440  
 Llanychaer, cottages, 427, 435, 438, 439  
 Longhouse 'dolmen', 196-200  
 Loulan, 13, 17, 18  
 Lo Yang, beads, 17, 19, 20  
     Capital of China, 17  
 Lozengrad, bee-hive tomb, 303  
 Lukis, W. C., 184, 195, 445  
 Lumley, G. P., 428  
 Lynam, Edward, 342  
 Lyneham barrow, 455  
 Lysippus, sculptor, 345  
  
 Macartney, R. H., 483  
 MACDONALD, ANGUS ; Place-names,  
     Scotland, 474-6  
 Maiden Castle, 211  
     Early reference, 33  
     Quern (*illus.*), 140, 141  
 Maiden stones, 299  
 Maidstone, quern, 145  
 Maimonides, Moses, 499-500  
 Malinche, mistress of Cortes, 312  
 Mallet, David, quoted, 32  
 Mallia, excavations, 503-6  
 MALLOWAN, M. E. L., 130  
     Syrian city of Til-Barsib (*illus.*), 328-39  
 Mal Tepe, *see* MEZEK  
 Man, symposium on early, 351-2  
 Mantzikert, fortifications, 466  
 Maplescombe, sacred sarsens, 218  
 Maps, 255, 341, 486-9  
     Battlefield of Brunanburh, 284  
     Crofts, north Pembrokeshire, 429  
     Silk routes, 8  
     Somaliland, 316  
     Stone monuments, Cheshire and  
         Lancashire, 295  
     Walls of Istanbul, 463  
     *See also* DISTRIBUTION-MAPS, PLANS  
 Marakanda, 9  
 Marston, A. T., 483  
 MARYON, HERBERT ; Passage on sculpture  
     by Diodorus of Sicily (*illus.*), 344-8  
     Prehistoric soldering and welding, 208-9  
 Masks, Egyptian, 176 (pl. VII), 181  
 Mason, William, 34, 35

# ANTIQUITY

- Mathematics (review), 108-10  
 Mat-making, Huleh, 212-13  
 MATTINGLY, H., and J. W. E. PEARCE; The Coleraine hoard (*illus.*), 39-45  
 Mbau, sacrificial stone (*illus.*), 219  
 Mecca, Ka'ba stone, 218  
 Médracen, royal burial monument, 88 (pl. iv), 91  
 Megaliths :—  
     Burj Hama (*illus.*), 220-1  
     'Dolmens', Britain (*illus.*), 183-200  
     France, 117-19  
     Strathearn, 387  
     Uist (South), 96-9  
     Use of wood (*illus.*), 87-92  
     Wales, 383-4  
 Mehmed, sultan of Turkey, 467, 468  
 Mentuemhet, sculptor, 181  
 Meroë, pyramids (*illus.*), 229-33  
 Merv, 9  
 Mexico, flying game (*illus.*), 306-14  
 Michael VIII, emperor, 467  
 Middlebie hill, 292, 293  
 Milan mint, 41, 42  
 Miles, William A., 36  
 Mill, grinding, 133-51  
 Minns, E. H., 7  
 Minturnae, 112-13  
 Mithra, 73  
 Mohammed Gran, 326  
 Montelius, Oscar, 184, 185  
 Moora, H., 159  
 Morham, cross, 469  
 Morse, William, 428, 434, 436, 438, 439  
 Mortars, pounding (*illus.*), 134  
 Mother-goddess, Gandhara (*illus.*), 70-9  
 Mowbray, Cecil, 327  
 Mugdrum, carved slab, 470  
 Museums, local, 38  
 Muziris, Indian port, 8  
 MYRES, J. N. L.; Some Anglo-Saxon potters (*illus.*), 389-99  
  
 Nabatene, 457  
 Naitan, Pictish king, 473  
 Nämforsen, rock-engravings, 63  
 Nant-y-Bugail, 436  
 Narmer, palette of (*illus.*), 264-7  
  
 Near East, time chart, 5-6  
 Neilson, George, 285  
 Neolithic dwellings, Aichbühl, 498-9  
 Neville, R. C., 389  
 New Barn Down, 136  
 Neweton, John de, 280  
 Newstead, quern (*illus.*), 147, 148  
 Niall, king of Ireland, 39, 42  
 Nicaea, wall, 465, 466  
 Niya, 17  
 Norbert (Saint), 281  
 North, F. J., 435  
 North Luffenham, Anglo-Saxon urns (*illus.*), 391  
 Norway, rock-engravings (*illus.*), 56-69  
 Nose, Armenoid (*illus.*), 21  
 Notes and News, 93-107, 201-33, 340-60, 469-89  
 Notgrove barrow, 453, 455  
  
 Obermaier, H., 185  
 Obsidian flakes, 323, 354  
 Olaf Guthfrithson, king of Dublin, 283 ff.  
 Oliphants, *see* HORNS  
 Omaha, earth-lodge (*illus.*), 88  
 O'NEIL, B. H. St. J., *see* HOGG (A. H. A.)  
 Ormsby-Gore, W., 213  
 Ornaments, Thraco-Scythian (*illus.*), 302  
 Oslo, rock-engravings, 57, 58, 63, 66, 67  
 Östergötland, bronze axes (*illus.*), 132  
 Otomi Indians, 312, 313  
 Owen of Strathclyde, 286  
 Ox-horns placed on chimney, 131  
  
 Pail, bronze, Mezek (*illus.*), 302  
 Painting, Persian (*illus.*), 24  
 Palace of Byzantium (*plan*), 356-9  
     Til-Barsib, 330-5  
 Pan Chao, Chinese general, 12  
 Pangaeum, 479  
 Pant-teg, house, 436  
 Papantla, 310  
 Paper, first use, 29  
     Making, England, 245  
 Papyri, study of, 260  
 Parthian era, 11  
 Passage-graves, 184, 185  
 Passmore, A. D., 188



# INDEX

Peake, H., 186  
 PEARCE, J. W. E., *see* MATTINGLY (H.)  
 Peate, Iorwerth, 438  
     'Presely', 131-2  
 Pembrokeshire, peasant crofts (*illus.*), 427-40  
 Pennant, Thomas, 33  
 PERKINS, J. B. W.; Roman bas-relief,  
     Avignon (*illus.*), 480-2  
 Persephone, daughter of Demeter, 129  
 Peshawar, mother-goddess sites, 79  
 Petra, 456  
 Petrie, Sir Flinders, 263  
 Petroleum, 256  
 Petrological analysis, 484-5  
 Pevensey, quern (*illus.*), 145, 146  
 Phallic stones, British Somaliland (*illus.*),  
     352-4  
 Phenician script, 277  
 PHILIP, I. G., Early maps, Bodleian Library  
     (*illus.*), 486-9  
 PHILLIPS, C. W., 4, 104  
     Some stone monuments (*illus.*), 294-9  
 Philon of Byzantium, 464  
 Phoenix, belief concerning, 26  
 Pictorial representation, 262-4  
     Tablets (*illus.*), 267, 270, 273, 275  
 PIGGOTT, STUART, 4, 150, 190  
     Long barrow in Brittany (*illus.*), 441-55  
     Prehistory and the Romantic movement,  
         31-8  
     White quartz pebbles as funerary offerings  
         (*illus.*), 354-5  
 Pile-houses, Yugoslavia (*illus.*), 340-1  
 Pit-dwellings, Farnham (*illus.*), 476-8  
 Place-names, Scotland, 474-6  
     Warwickshire, 240-2  
 PLANS :—  
     Bullington priory, 216  
     Cairns, Brittany, 442, 444, 446, 454  
     Causewayed camp, West Wickham, 224  
     Chambered cairn, Keriaval, Brittany, 454  
     Church of St. Martin, Angers, 401, 403,  
         405, 407  
     Cottages, Pembrokeshire, 431, 432, 433,  
         437  
     Gottscheina, 211  
     House-sites, Jutland, 165, 167, 168, 169,  
         171

## PLANS, *continued* :—

Houses, Somaliland, 317  
     Section of bee-hive tomb, 305  
     Village-site, Vestervig, 163  
 Plas Newydd, 33, 190, 192, 193  
 Polykleitos, sculptor, 345  
 Pompeii, 110, 111  
 Portrait sculpture, Egypt (*illus.*), 174-82  
 POTTERY :—  
     Anglo-Saxon (*illus.*), 389-99  
     Brittany (*illus.*), 446, 447, 448, 449-53  
     Burj Hama, 220-1  
     Camp de Chassey, 451  
     Carnac museum, 451  
     Carn Brea, 451  
     Castellic, 451, 452  
     Clettraval, 453  
     Dartmoor, 450, 451  
     Dating by dendrochronology, 418-24  
     Eyford, 453  
     Gard, Grotte de Saze, 451  
     Grotte de Bize, 453  
     Hembury Fort, 450, 451  
     Kervilor, 453  
     Lligwy, 453  
     Maiden Castle, 451  
     Pots and culture (*illus.*), 342-4  
     Rudh' an Dunain, 453  
     Somaliland, 318, 320, 321, 322, 323  
     Stamps (*illus.*), 390-9  
     Tepe Giyan, 506-10  
     Til-Barsib (*illus.*), 336-9  
     Unival, 453  
     Windmill Hill, 450  
 PRADENNE, A. VAYSON DE; Use of wood in  
     megalithic structures (*illus.*), 87-92  
 Prehistoric archaeology, 152-61  
     Society, 3-4, 132  
     Soldering and welding, 208-9  
 Prehistory and the romantic movement,  
     31-8  
 Presely, ophitic dolerite, 484  
     Spelling of, 131-2  
 Printing in China (*illus.*), 29, 30  
     Japan, 29  
 Ptah of Memphis, 174  
 Pyramids of Meroë (*illus.*), 229-33  
 Querns (*illus.*), 133-51

# ANTIQUITY

- Rackham, Bernard, 15  
 Radford, C. A. R., 192  
 Randylands, querns (*illus.*), 147, 148  
 Rankine, W. F., 476, 477  
 Ranofer, statues, 179  
 Ras Shamra, lectures, 131  
 Reinach, Saloman, 184  
 Rein-ring (*illus.*), 337  
 REVIEWS, 108-28, 234-56, 361-84, 494-512  
 Rhoecus, 344  
 Rhytons, origin, 20  
 Richborough, quern (*illus.*), 147, 148, 149  
 Richmond, Ian, 386  
 'Ringwall' settlements, 211  
 Risborough, Saxon charter, 102  
 Ritchie, P. D., 15, 17  
 Robin Hood's picking rods (*illus.*), 294,  
     296-7, 299  
 Rock-engravings, distribution-map, 61  
     Scandinavia (*illus.*), 56-69  
 Rock-paintings, Scandinavia, 67, 68  
 Roger II, king of Sicily, 341  
 Rollright, 33  
 ROMAN bas-relief, Avignon (*illus.*), 480-2  
     Coins, Coleraine, 39-43  
     Donkey-mill (*illus.*), 137, 138, 139  
     Fort, Fendoch, 386  
     Hoard, Coleraine (*illus.*), 39-45  
     Orient and the Far East (*illus.*), 5-30  
     Pottery ware, 46-55  
     Remains, Angers (*plan*), 402-4  
         East Yorkshire, 381-2  
     Wall, 111-12  
 Romantic movement and archaeology,  
     31-8  
 Rome, 379  
     Basilica of S. Giovanni à Porta Latina,  
         130  
 Rönningen, rock-engravings (*illus.*), 65, 66  
 ROPER, F.; Chilean baking-oven (*illus.*),  
     355-6  
 Ross, Sir Denison, 342  
 Rowlands, Henry, 33  
 Rugayi (Ethiopia), 318, 319  
 RUGG-GUNN, A.; Megalithic remains,  
     South Uist (*illus.*), 96-9  
 Russia, archaeology, 496-7  
 Rustam, representation of (*illus.*), 24  
 Saad-Din, 325  
 Saad-Din island, 316, 323, 324  
 Sacred stones (*illus.*), 218-19  
 Saddle-querns (*illus.*), 135-7  
 St. Gall abbey, 281  
 St. Vigeans, cross-shaft (*illus.*), 471  
 Salamander, belief concerning, 26  
 Salisbury, Blackmore museum, 38  
 Samarkand, 9  
 Samarra, stoneware and porcelain, 23  
 Samian ware, 46-55  
 Samsi-ilu, governor of Til-Barsib, 330  
 Samson, Otto, 15  
 Samson (Scilly), 137  
 Sancton, Anglo-Saxon urns, 392, 395  
 Sandbach, cross-shafts, 299  
 Sari Dheri, 72, 73  
 Scandinavia, stone age, 113  
 Schaeffer, Claude, 131  
 SCHARFF, ALEXANDER; Egyptian portrait-  
     sculpture (*illus.*), 174-82  
 Schede (Herr), 468  
 SCHNEIDER, A. M.; City-walls of Istanbul  
     (*illus.*), 461-8  
 Schweich lectures, 131  
 Science, history of, 500-1  
 Scotland, antiquities, 386-7  
     Place-names, 474-6  
     Querns (*illus.*), 147, 148, 149, 150  
 Scotorum Vadum, river-crossing, 289, 290  
 Scots' Wath, 290, 291  
 Scott, W. Lindsay, 451, 453  
     Chiltern white crosses (*illus.*), 100-4  
 Scribe of the Louvre, 176 (pl. III), 179  
 Sculpture, Babylonian, 130  
     Egypt (*illus.*), 174-82, 344-6, 348  
     Passage by Diodorus of Sicily (*illus.*),  
         344-8  
     Pre-Norman, 259  
     Vine-scroll (*illus.*), 469-73  
 Seal-impression, Tepe Gawra, 130  
 Seleucia-Ctesiphon, 9  
 SELIGMAN, C. G.; Roman Orient and the  
     Far East (*illus.*), 5-30  
 Selim I, sultan, 325  
 Selim II, sultan, 322, 326  
 Sempringham priory, 214  
 Seneb (dwarf), 175, 176 (pl. II), 178, 179

# INDEX

- Sennacherib, 328  
 Sesostri III, head of, 176 (pl. IV), 180  
 Shalmaneser, 329  
 Sheep, Mesopotamia, 512  
 Shōmu, emperor, 16  
 Shrine, mother-goddess (*illus.*), 74-7  
 Silchester, 104, 105  
 Silk, early trading, 13, 14  
     Hunter (*illus.*), 14  
     Routes (*map*), 7-10, 20  
     Weaving, 14  
 Silla, kingdom, 16  
 Silver, Coleraine hoard (*illus.*), 39-45  
 Sirkap, shrines (*illus.*), 74-7  
 Sixhills, Gilbertine priory, 214  
 Skogerveien, rock-engravings, 58, 60  
 Smith, A. H., 284  
     Sir Grafton E., 262  
     Sidney, 268  
 Smithsonian Institution (report), 120-2  
 Society of Antiquaries, 31, 34  
 Soldering, prehistoric, 208-9  
 Solsem, rock-paintings, 67, 68  
 Somaliland (British), carved stones (*illus.*),  
     352-4  
     Ruined towns (*illus.*), 315-27  
     Tribes, 327  
 Stallings, W. S., 411, 424  
 Starkey, J. L., 359  
 Steatite ware, 318, 322, 323  
 Stevens, E. T., 38  
 STEWART, J. R. ; Excavations at Vounous,  
     Cyprus (*illus.*), 356  
     Turkish water bottle, 482-3  
 Stone age (review), 113-16  
     Europe, 248-50  
     Monuments, Cheshire and Lancashire  
     (*illus.*), 294-9  
 Stonehenge, construction, 88-92  
     Provenance of 'foreign' stones, 484  
     Suggested reconstruction (*illus.*), 89  
 Stones, carved, Herirat (*illus.*), 352-4  
 Stork bones, Cambridge, 130  
 Strata Florida, 37  
 Strathearn, cairns, 387  
 Stretford stone (*illus.*), 294, 298, 299  
 Stukeley, William, 33  
 Sueno's stone, 470  
 Sumer, writing in (*illus.*), 267-77  
 Sussex, archaeology, 234-8  
 Swanscombe, human remains, 483  
 Sweden, rock-engravings (*illus.*), 56-69  
 Ta Hsia, 11  
 T'ai Tsung, emperor of China, 23  
 TALLGREN, A. M. ; Method of prehistoric  
     archaeology, 152-61  
 T'ang porcelain, 23  
 Tarbat, carved slab, 469, 470  
 Taxila, dating of Bhir Mound, 77  
     Mother-goddess sites, 79  
 Taylor, R. H. R., 315, 354  
 Ta Yuan, 11, 12  
 Ta Yueh Chih, 11, 17  
 Telecles, sculptor, 344, 345, 346, 348  
 Tell-'Ahmar, site of Til-Barsib, 328-39  
 Tell Chagar Bazar, 130, 502  
 Tell el-Duweir, inscriptions, 359-60  
 Tennes, rock-engravings, 60  
 Tepe Gawra, finds, 130, 131  
 Tepe Giyan, excavations, 506-10  
 Terra-cotta figures, India (*illus.*), 71, 72, 74,  
     75  
 Themistius, 461  
 Theodorus, sculptor, 344, 345, 346, 348  
 Theodosius, emperor, 461, 462, 464, 465  
 Thermi, excavations, 123-4  
 Thickthorn barrow, 455  
 Thomas, H. H., 484  
 Thompson, Campbell, 328  
 Thrace, bee-hive tombs of Mezek (*illus.*),  
     300-5  
     Bridge in (*illus.*), 479-80  
 Thundersbarrow Hill, quern (*illus.*), 143  
 Thurnam, J., 186, 441  
 Tien Chu Kuo, 18  
 Tiglath-Pileser III, 328  
 Til-Barsib (*illus.*), 328-39  
 Tlazolteotl, goddess, 313  
 Tocatines, dancers, 310, 311, 312, 314  
 Tombs, Mezek (*illus.*), 300-5  
     Cult-chamber, 175  
     Rock-cut, Ireland, 348-50  
     Statue-chamber, 175  
 Totonac rite, 310  
 Transmutation of metals, 26



## ANTIQUITY

- Treadmill, 244  
 Trecŵn, 427  
 Tree-rings, study of (*illus.*), 409-26  
 Trees, dating scales, 409-26  
 Trundle, post-holes, 210, 211  
     Querns, 140, 143  
 Tunstall, Gilbertine convent, 214  
 Turfan, 9  
 Turf-cut crosses (*illus.*), 100-4  
  
 Uist (South), megaliths (*illus.*), 96-9  
 Uley barrow, 453  
 Ulyyott, Philip, 4  
 Ulph Thorgilsson, 279  
 Ulph Thoroldsson, horn of (*illus.*), 278-82  
 Umehara, S., 16  
 Umm el-Jamal (*illus.*), 456-60  
 Uppsala, tumuli, 247-8  
 Ur, ram of gold (*illus.*), 226  
 Urns, Anglo-Saxon (*illus.*), 389-99  
 Uruk, *see* ERECH  
  
 Values, 1-2  
 Van Millingen, A., 461  
 Varia, 129-32  
 Vasa Samia, 46-55  
 Vicychl, Werner, 129  
 Vine-scroll, distribution (*map*), 472-3  
     Scotland (*illus.*), 469-73  
 Vingen, rock-engravings (*illus.*), 57, 58, 60,  
     63, 67  
 Vinheidr, battle, 283, 285, 287, 288  
 Volador dance (*illus.*), 306-14  
 Vounous, excavations (*illus.*), 356  
  
 WAAGÉ, F. O. ; Vasa Samia, 46-55  
 WAINWRIGHT, G. A. ; Pyramids of Meroë  
     (*illus.*), 229-33  
 Wales (South), Ordnance map, 383-4  
 Wall-paintings, Til-Barsib (*illus.*), 331-5  
  
 Walpole, Horace, 34  
 Wandlebury camp, 104  
 Warwickshire, place-names, 240-2  
 Watton, Gilbertine convent, 214, 215, 217  
 Welding, prehistoric, 208-9  
 Wendune, battle, 283, 290  
 Westbury, quern, 137  
     White horse, 104  
 West Kennet, barrow, 453  
 Westmorland, monuments, 238-40  
 West Stow, Anglo-Saxon urns (*illus.*), 391  
 West Wickham, camp (*plan*), 132, 223-5  
 Whaley Moor, stone (*illus.*), 294, 297, 299  
 White, Bishop (Honan), 15, 17, 18  
 Whitehawk camp, 135, 210  
 Whiteleaf Hill, turf-cut cross (*illus.*), 100-4  
 Winchester, quern (*illus.*), 149, 150  
 Winchilsea (Lady), quoted, 31  
 Windmill Hill, 135  
     Causewayed settlement, 210  
     Provenance of stone, 484  
 Wine trade, 10, 481  
 Wise, Francis, 33, 100, 102, 103, 104  
 Wood, use in megaliths (*illus.*), 87-92  
     Panel (*illus.*), 24  
 Woodhenge, 91  
 Word-signs (*illus.*), 270-6  
 Writing, history (*illus.*), 261-77  
 Wu, emperor of China, 10, 12  
  
 Xipe, god, 313  
 Xochipilli, god of dawn, 310  
  
 Yellow river, source, 11, 12  
 York, cross-shaft, St. Peter's (*illus.*), 470  
 Yorkshire, Roman remains, 381-2  
 Young, Arthur, 33  
  
 Zeila (Somaliland), 316, 317, 324, 325, 354  
 Zeugma, 9

# INDEX

## REVIEWS OF BOOKS

	PAGE
Åberg (Nils). <i>Vorgeschichtliche Kulturkreise in Europe</i> - - - - -	248
Albright (W. F.). <i>How well can we know the ancient Near East</i> - - - - -	378
Braun (H.). <i>The English castle</i> - - - - -	368
Brown (Paul). <i>Great wall of Hadrian in Roman times</i> - - - - -	111
Caiger (S. L.). <i>Bible and spade</i> - - - - -	367
Carpenter (R.) and A. Bon. <i>Corinth</i> - - - - -	254
Carrington (R. C.). <i>Pompeii</i> - - - - -	110
Chapoutier (F.) and R. Joly. <i>Fouilles exécutées à Mallia</i> - - - - -	503
Clark (M. K.). <i>Gazetteer of Roman remains in East Yorkshire</i> - - - - -	381
Contenau (G.) and R. Ghirshman. <i>Fouilles du Tépé-Giyan près de Néhavend</i> - - - - -	506
<i>Corpus du Folklore préhistoriques en France et dans les Colonies françaises</i> - - - - -	117
Creel (H. G.). <i>Birth of China</i> - - - - -	254
Curwen (E. C.). <i>Archaeology of Sussex</i> - - - - -	234
Eisen (G. A.). <i>Great chalice of Antioch</i> - - - - -	124
Elferink (L. J.). <i>Lekythos</i> - - - - -	376
Farrington (B.). <i>Science in Antiquity</i> - - - - -	500
Forbes (R. J.). <i>Bitumen and Petroleum in Antiquity</i> - - - - -	256
Forrer (R.). <i>L'Alsace romaine</i> - - - - -	128
Forssander (J. E.). <i>Der Ostskandinavische Norden während der Ältesten Metallzeit</i>	
<i>Europas</i> - - - - -	113
Gadd (C. J.). <i>Stones of Assyria</i> - - - - -	373
Gann (T.). <i>Mexico</i> - - - - -	370
<i>Georgica</i> , nos. 1-3 - - - - -	372
Goldman (S.). <i>The Jew and the Universe</i> - - - - -	499
Gover (J. E. B.) and others. <i>Place-names of Warwickshire</i> - - - - -	240
Grimes (W. F.). <i>Megalithic monuments of Wales</i> - - - - -	383
Gunnis (R.). <i>Historic Cyprus</i> - - - - -	250
Heinrich (E.). <i>Kleinfunde aus den archaischen tempelschichten in Uruk</i> - - - - -	510
Hildburgh (W. L.). <i>Medieval Spanish enamels</i> - - - - -	364
Hogben (L.). <i>Mathematics for the Million</i> - - - - -	108
<i>Inventory of the Historical Monuments of Westmorland</i> - - - - -	238
Jacobsen (T.) and S. Lloyd. <i>Sennacherib's aqueduct at Jerwan</i> - - - - -	125
Jenkins (Rhys). <i>Links in the history of Engineering and Technology</i> - - - - -	244
Johnson (Jotham). <i>Excavations at Minturnae</i> - - - - -	112
Kersten (K.). <i>Zur älteren Nordischen Bronzezeit</i> - - - - -	116
Laistner (M. L. W.). <i>History of the Greek world</i> - - - - -	127
Lamb (W.). <i>Excavations at Thermi in Lesbos</i> - - - - -	123
Lindqvist (S.). <i>Uppsala Högår och Ottarshögen</i> - - - - -	247
Lloyd (S.). <i>Mesopotamia</i> - - - - -	501
Macalister (R. A. S.). <i>Ancient Ireland</i> - - - - -	494
Mallowan (M. E. L.). <i>Excavations at Tell Chagar Bazar</i> - - - - -	502
<i>Map of South Wales</i> - - - - -	383
Marr (N. Y.) and J. I. Smirnov. <i>Les Vichaps</i> - - - - -	122
Mason (T. H.). <i>Islands of Ireland</i> - - - - -	377
<i>Nordisk Kultur</i> - - - - -	366

# ANTIQUITY

	PAGE
Nörlund (P.) <i>Viking settlers in Greenland</i>	246
Poultney (J. W.) <i>Syntax of the Genitive case in Aristophanes</i>	250
Randall (H. J.) <i>History in the open air</i>	243
<i>Religions</i> , January 1937	374
Robinson (D. M.) <i>History of Greece</i>	126
Sanceau (E.) <i>Indies adventure</i>	371
Sarton (G.) <i>Study of the history of Science</i>	500
Schmidt (R. R.) <i>Jungsteinzeit-siedlungen in Federseemoor</i>	497
Smith (H. R. W.) <i>Corpus vasorum antiquorum</i>	246
<i>Smithsonian Institution annual report</i>	120
<i>Soknopaiou Nesos</i> . Ed. by A. E. R. Boak	253
<i>Sovietskaya Archeologiya</i>	496
Stanley (C.) <i>Roots of the Tree</i>	375
<i>Temple of King Sethos I, Abydos</i>	242
Thureau-Dangin (F.) and M. Dunand. <i>Til-Barsib</i>	328
Umehara (S.) <i>Étude sur le Miroir antérieur à la Dynastie des 'Han'</i>	252
— <i>Étude des Bronzes des royaumes combattants</i>	252
Vale (E.) <i>World of Wales</i>	255
Vallance (Aymer). <i>English church screens</i>	245
Van Buren (A. W.) <i>Ancient Rome as revealed by recent discoveries</i>	379
Whatmough (J.) <i>Foundations of Roman Italy</i>	361
Winterbotham (H. S. L.) <i>Key to maps</i>	255



# Antiquity

A QUARTERLY REVIEW OF ARCHÆOLOGY



*Edited by*

*O. G. S. Crawford, F.S.A., and Roland Austin, F.S.A.*

**MARCH 1937**

	Page
Editorial Notes	I
The Roman Orient and the Far East. By C. G. SELIGMAN	5
Prehistory and the Romantic Movement. By STUART PIGGOTT	31
The Coleraine Hoard. By HAROLD MATTINGLY and J. W. E. PEARCE. With a note by T. D. KENDRICK	39
Vasa Samia. By F. O. WAAGÉ	46
Scandinavian Rock-engravings. By GRAHAME CLARK	56
The Mother-Goddess of Gandhara. By MAJOR D. H. GORDON	70
The Lighter Side of Archaeology. By E. CECIL CURWEN	80
The Use of Wood in Megalithic Structures. By A. VAYSON DE PRADENNE	87
Notes and News :—	
<i>Tribulum</i> -flint from Sussex, 93 ; A Flanged Axe from Greece, 95 ; Megalithic Remains, South Uist, 96 ; The Chiltern White Crosses, 100 ; The Calleva of Eppillus, 104 ; Cambay Beads, 105	
Reviews ( <i>for list see overleaf</i> )	108

Published at 24 Parkend Road, Gloucester, England

## REVIEWS

	Page
<i>Mathematics for the Million.</i> By Lancelot Hogben - - - - -	108
<i>Pompeii.</i> By R. C. Carrington - - - - -	110
<i>The Great Wall of Hadrian in Roman Times.</i> By Paul Brown - - - - -	111
<i>Excavations at Minturnae.</i> By Jotham Johnson - - - - -	112
<i>Der Ostskandinavische Norden während der Ältesten Metallzeit Europas.</i> By J. E. Forssander - - - - -	113
<i>Zur Älteren Nordischen Bronzezeit.</i> By Karl Kersten - - - - -	116
<i>Corpus du Folklore préhistorique en France et dans les Colonies françaises.</i> Edited by P. Saintyves - - - - -	117
<i>Annual Report of the Smithsonian Institution, 1935</i> - - - - -	120
<i>Les Vichaps.</i> By N. Y. Marr and J. I. Smirnov - - - - -	122
<i>Excavations at Thermi in Lesbos.</i> By Winifred Lamb - - - - -	123
<i>The Great Chalice of Antioch.</i> By Gustavus A. Eisen - - - - -	124
<i>Sennacherib's Aqueduct at Jerwan.</i> By T. Jacobsen and Seton Lloyd - - - - -	125
<i>Short History of Greece.</i> By David M. Robinson - - - - -	126
<i>History of the Greek World from 479 to 323 B.C.</i> By M. L. W. Laistner - - - - -	127
<i>L'Alsace Romaine.</i> By Robert Forrer - - - - -	128

## EDITORIAL NOTICES

ANTIQUITY is published quarterly on the 1st of March, June, September, and December.

WRITERS wishing for reprints of their articles should apply to 24 Parkend Road, Gloucester.

THE ANNUAL SUBSCRIPTION (including postage) is ONE POUND sterling. It is payable in advance to ANTIQUITY, 24 Parkend Road, Gloucester, England.

SINGLE COPIES may be obtained direct or through booksellers for 5s. 6d. (post paid). Apply ANTIQUITY, 24 Parkend Road, Gloucester.

MSS (whether in the form of Articles or Notes) offered for publication should be sent to Mr O. G. S. CRAWFORD, Nursling, Southampton, England, and a stamped addressed envelope enclosed. All MSS must be typewritten. Payment is made for Articles only. The EDITORS are not responsible for the opinions expressed by contributors.

BOOKS for REVIEW should be addressed to the EDITOR, Nursling, Southampton.

ADVERTISEMENTS, and all communications relating to them, to be sent to 24 Parkend Road, Gloucester.

Binding Cases for Volume XI (nos. 41-44) can be obtained from John Bellows Ltd., Gloucester, England, 4s. post free, or if the numbers are sent for binding the inclusive charge is 7s. 6d. Remittance must accompany the order.

# Antiquity

A QUARTERLY REVIEW OF ARCHÆOLOGY



*Edited by*

*O. G. S. Crawford, F.S.A., and Roland Austin, F.S.A.*

**JUNE 1937**

	Page
Varia — — — — —	129
Querns. By E. CECIL CURWEN — — — — —	133
The Method of Prehistoric Archaeology. By A. M. TALLGREN —	152
Dwelling-houses in Jutland in the Iron Age. By GUDMUND HATT —	162
Egyptian Portrait-Sculpture. By ALEXANDER SCHARFF — —	174
The 'Dolmens' of Southern Britain. By GLYN DANIEL — —	183
Notes and News :—	

Manufacture of Gun-flints, 201 ; Prehistoric Soldering and Welding, 208 ; Causewayed Settlements, 210 ; Mat-makers of Huleh, 212 ; Bullington Priory, Lincolnshire, 213 ; Christianity and Paganism, 218 ; Cave-life in Britain, 219 ; The Megalithic site of Burj Hama, 220 ; Iron-smelting with Lake- and Bog-Iron Ores, 221 ; Early Iron-smelting in Egypt, 222 ; Causewayed Earthwork in West Kent, 223 ; Goats from Ur and Kish, 226 ; The Pyramids of Meroë in a Japanese Colour-print, 229

Reviews ( <i>for list see overleaf</i> ) — — — — —	234
--	-----

Published at 24 Parkend Road, Gloucester, England



## REVIEWS

	Page
<i>The Archaeology of Sussex.</i> By E. Cecil Curwen — — — — —	234
<i>Historical Monuments in Westmorland</i> — — — — —	238
<i>Place-names of Warwickshire.</i> By J. E. B. Gover and others — — — — —	240
<i>The Temple of King Sethos at Abydos</i> — — — — —	242
<i>History in the Open Air.</i> By H. J. Randall — — — — —	243
<i>Links in the history of Engineering and Technology : collected papers of Rhys Jenkins</i> —	244
<i>English Church Screens.</i> By Aymer Vallance — — — — —	245
<i>Corpus Vasorum Antiquorum.</i> By H. R. W. Smith — — — — —	246
<i>Viking Settlers in Greenland.</i> By Poul Nörlund — — — — —	246
<i>Uppsala Höggar och Ottarshögen.</i> By Sune Lindqvist — — — — —	247
<i>Vorgeschichtliche Kulturkreise in Europa.</i> By Nils Åberg — — — — —	248
<i>Syntax of the genitive case in Aristophanes.</i> By J. W. Poultney — — — — —	250
<i>Historic Cyprus.</i> By Rupert Gunnis — — — — —	250
<i>L'Étude sur le Miroir antérieur à la Dynastie des ' Han '.</i> By Sueji Umehara — —	252
<i>Étude des Bronzes des royaumes combattants.</i> By Sueji Umehara — — — — —	252
<i>Soknopaïou Nesos.</i> By A. E. R. Boak — — — — —	253
<i>Corinth.</i> By Rhys Carpenter and Antoine Bon — — — — —	254
<i>The Birth of China.</i> By Herrlee G. Creel — — — — —	254
<i>A Key to Maps.</i> By H. S. L. Winterbotham — — — — —	255
<i>The World of Wales.</i> By Edmund Vale — — — — —	255
<i>Bitumen and Petroleum in Antiquity.</i> By R. J. Forbes — — — — —	256

## EDITORIAL NOTICES

ANTIQUITY is published quarterly on the 1st of March, June, September, and December.

WRITERS wishing for reprints of their articles should apply to 24 Parkend Road, Gloucester.

THE ANNUAL SUBSCRIPTION (including postage) is ONE POUND sterling. It is payable in advance to ANTIQUITY, 24 Parkend Road, Gloucester, England.

SINGLE COPIES may be obtained direct or through booksellers for 5s. 6d. (post paid). Apply to ANTIQUITY, 24 Parkend Road, Gloucester.

MSS (whether in the form of Articles or Notes) offered for publication should be sent to Mr O. G. S. CRAWFORD, Nursling, Southampton, England, and a stamped addressed envelope enclosed. All MSS must be typewritten. Payment is made for Articles only. The EDITORS are not responsible for the opinions expressed by contributors.

BOOKS for REVIEW should be addressed to the EDITOR, Nursling, Southampton.

ADVERTISEMENTS, and all communications relating to them, to be sent to 24 Parkend Road, Gloucester.

Binding Cases for Volume XI (nos. 41-44) can be obtained from John Bellows Ltd., Gloucester, England, 4s. post free, or if the numbers are sent for binding the inclusive charge is 7s. 6d. Remittance must accompany the order.

# Antiquity

A QUARTERLY REVIEW OF ARCHÆOLOGY



*Edited by*

*O. G. S. Crawford, F.S.A., and Roland Austin, F.S.A.*

**SEPTEMBER 1937**

	Page
Editorial Notes	257
The Early History of Writing. By S. H. HOOKE	261
The Horn of Ulph. By T. D. KENDRICK	278
The Battlefield of Brunanburh. By W. S. ANGUS	283
Some Stone Monuments. By C. W. PHILLIPS	294
The Bee-hive Tombs of Mezek. By B. FILOV	300
The Mexican Indian Flying Game. By RODNEY GALLOP	306
The Ruined Towns of Somaliland. By A. T. CURLE	315
The Syrian City of Til-Barsib. By M. E. L. MALLOWAN	328
Notes and News :—	
Pile-houses, 340 ; Arab Map of the British Isles, 341 ; Pots and Culture, 342 ; A passage on Sculpture by Diodorus of Sicily, 344 ; Early rock-cut Tombs in Ireland, 348 ; The Indus Civilization, 351 ; Symposium on Early Man, Philadelphia, 351 ; Carved Stones, British Somaliland, 352 ; White quartz pebbles as Funerary Offerings, 354 ; Chilean Baking-oven, 355 ; Excavations at Vounous, Cyprus, 356 ; Byzantium, 356 ; Origin of our Alphabet, 359.	
Reviews ( <i>for list see overleaf</i> )	361

**Published at 24 Parkend Road, Gloucester, England**

## REVIEWS

	Page
<i>The Foundations of Roman Italy.</i> By Joshua Whatmough	361
<i>Medieval Spanish Enamels.</i> By W. L. Hildburgh	364
<i>Nordisk Kultur</i> , part 16	366
<i>Bible and Spade.</i> By Stephen L. Caiger	367
<i>The English Castle.</i> By Hugh Braun	368
<i>Mexico from the earliest times to the Conquest.</i> By Thomas Gann	370
<i>Indies Adventure.</i> By Elaine Sanceau	371
<i>Georgica</i> , numbers 1-3, 1935-36	372
<i>The Stones of Assyria.</i> By C. J. Gadd	373
<i>Religions</i> , January 1937	374
<i>Roots of the Tree.</i> By Carleton Stanley	375
<i>Lekythos.</i> By L. J. Elferink	376
<i>The Islands of Ireland.</i> By Thomas H. Mason	377
<i>How well can we know the ancient Near East.</i> By W. F. Albright	378
<i>Ancient Rome as revealed by recent Discoveries.</i> By A. W. van Buren	379
<i>Gazetteer of Roman Remains in East Yorkshire.</i> By Mary Kitson Clark	381
<i>Map of South Wales</i> (Ordnance Survey)	383
<i>Megalithic Monuments of Wales.</i> By W. F. Grimes	383

## EDITORIAL NOTICES

ANTIQUITY is published quarterly on the 1st of March, June, September, and December.

THE ANNUAL SUBSCRIPTION (including postage) is ONE POUND sterling. It is payable in advance to ANTIQUITY, 24 Parkend Road, Gloucester, England.

SINGLE COPIES may be obtained direct or through booksellers for 5s. 6d. (post paid). Apply ANTIQUITY, 24 Parkend Road, Gloucester.

MSS (whether in the form of Articles or Notes) offered for publication should be sent to Mr O. G. S. CRAWFORD, Nursling, Southampton, England, and a stamped addressed envelope enclosed. All MSS must be typewritten. Payment is made for Articles only.

The EDITORS are not responsible for the opinions expressed by contributors.

WRITERS wishing for reprints of their articles should apply to 24 Parkend Road, Gloucester.

BOOKS for REVIEW should be addressed to the EDITOR, Nursling, Southampton.

ADVERTISEMENTS, and all communications relating to them, to be sent to 24 Parkend Road, Gloucester.

Binding Cases for Volume XI (nos. 41-44) can be obtained from John Bellows Ltd., Gloucester, England, 4s. post free, or if the numbers are sent for binding the inclusive charge is 7s. 6d. Remittance must accompany the order.



# Antiquity

A QUARTERLY REVIEW OF ARCHÆOLOGY



*Edited by*

*O. G. S. Crawford, F.S.A., and Roland Austin, F.S.A.*

DECEMBER 1937

	Page
Editorial Notes	385
Some Anglo-Saxon Potters. By J. N. L. MYRES	389
The Church of St. Martin at Angers. By GEORGE H. FORSYTH, Jr.	400
Dendrochronology. By F. MARTIN BROWN	409
Peasant Crofts in North Pembrokeshire. By SIR CYRIL FOX	427
The Long Barrow in Brittany. By STUART PIGGOTT	441
Umm el-Jamal. By GEORGE HORSFIELD	456
The City-Walls of Istanbul. By A. M. SCHNEIDER	461
Notes and News :—	
The Vine-Scroll in Scotland, 469; Place-names, Scotland, 474; Mesolithic Pit-dwellings, 476; Bone-caves, Jura, 478; Bridge in Thrace, 479; Roman Bas-relief, Avignon, 480; Turkish Water Bottle, 482; Human remains, Swanscombe, 483; Petrological Analysis, 484; Institute of Archaeology, London, 486; Early Maps, 486	
The Plan for Avebury : an Appeal to the Nation	490
Reviews ( <i>for list see overleaf</i> )	494
Title-page, Contents, and Index to Volume XI	

Published at 24 Parkend Road, Gloucester, England

## REVIEWS

	Page
<i>Ancient Ireland.</i> By R. A. S. Macalister - - - - -	494
<i>Sovietskaya Archeologiya</i> , Number 1. - - - - -	496
<i>Jungsteinzeit-Siedlungen in Federseemoor.</i> By R. R. Schmidt - - - - -	497
<i>The Jew and the Universe.</i> By Solomon Goldman - - - - -	499
<i>The Study of the History of Science.</i> By George Sarton - - - - -	500
<i>Science in Antiquity.</i> By Benjamin Farrington - - - - -	500
<i>Mesopotamia.</i> By Seton Lloyd - - - - -	501
<i>Excavations at Tell Chagar Bazar.</i> By M. E. L. Mallowan - - - - -	502
<i>Fouilles exécutées à Mallia.</i> By F. Chapoutier and R. Joly - - - - -	503
<i>Fouilles du Tépé-Giyan près de Néhavend.</i> By G. Contenau and R. Ghirshman - - - - -	506
<i>Kleinfunde aus den Archaischen Tempelschichten in Uruk.</i> By Ernst Heinrich - - - - -	510

## EDITORIAL NOTICES

ANTIQUITY is published quarterly on the 1st of March, June, September, and December.

THE ANNUAL SUBSCRIPTION (including postage) is ONE POUND sterling. It is payable in advance to ANTIQUITY, 24 Parkend Road, Gloucester, England.

SINGLE COPIES may be obtained direct for 5s. 6d. (post paid). Apply ANTIQUITY, 24 Parkend Road, Gloucester.

MSS (whether in the form of Articles or Notes) offered for publication should be sent to Mr O. G. S. CRAWFORD, Nursling, Southampton, England, and a stamped addressed envelope enclosed. All MSS must be typewritten. Payment is made for Articles only.

The EDITORS are not responsible for the opinions expressed by contributors.

WRITERS wishing for reprints of their articles should apply to 24 Parkend Road, Gloucester.

BOOKS for REVIEW should be addressed to the EDITOR, Nursling, Southampton.

ADVERTISEMENTS, and all communications relating to them, to be sent to 24 Parkend Road, Gloucester.

Binding Cases for Volume XI (nos. 41-44) can be obtained from John Bellows Ltd., Gloucester, England, 4s. post free, or if the numbers are sent for binding the inclusive charge is 7s. 6d. Remittance must accompany the order.



# Ordnance Survey Maps

## NEOLITHIC WESSEX, TRENT BASIN & SOUTH WALES

Maps on the 'Quarter-Inch' scale, showing the distribution of long barrows, habitation sites, flint mines. With the folded edition is a descriptive schedule of sites and letterpress.

Price:—in cover, with letterpress, on paper 5s; on linen 5s 6d; dissected 6s 6d. Map only, paper flat 2s.

## STRIP-MAP OF LITTLINGTON

An explanation of headlands illustrated by an old map of 1804 and by air-photographs, 1937.

Price:—2s 6d.

## CELTIC EARTHWORKS OF SALISBURY PLAIN

This area will be covered by six sheets, of which the first, 'OLD SARUM' is now ready. This map, on the scale of 1:25,000, is based largely on Air Photographs and shows Celtic fields, linear earthworks and barrows. It is intended mainly for those interested in Field Archaeology.

Price:—in covers, on paper 2s 3d; on linen 3s; dissected 4s; on paper flat 1s 6d.

## ROMAN BRITAIN

Scale:—1/M (1:1,000,000) showing Roman roads, towns, villages, potteries, mines, military sites (classified), milestones, villas and other large houses, etc. The physical basis shows relief by means of layer tints. With the folded edition is bound an index, chronological table, explanatory notes and bibliography.

Price:—in cover, with letterpress, on paper 4s; on linen 5s; dissected 6s 6d. Map only, paper flat 2s 6d. Also sold flat on tracing paper (Roman portion and woods only) price:—1s.

## FIELD ARCHAEOLOGY.

Some notes for beginners. Price:—6d.

## BRITAIN IN THE DARK AGES (South Sheet)

On the same scale and physical basis as 'Roman Britain', showing towns, villages and other sites of historical importance in the period (A.D. 410-871); also Anglo-Saxon cemeteries, crosses, memorial-stones, ditches, etc. Compiled from original sources. With the folded edition are small-scale distribution maps of place-names ending in -ing and of the A.-S. cemeteries (for comparison).

Price:—in cover, with letterpress, on paper, 4s; on linen 5s; dissected 6s 6d. Map only, paper flat 2s 6d.

## XVII CENTURY ENGLAND

On the same scale and physical basis as 'Roman Britain'; roads based on Ogilby's Survey (1675); towns and ports classified in order of importance. With the folded edition is bound a map of London (circa 1660), a foreword by Prof. G. M. Trevelyan, a brief outline of the Civil War by Dr. J. E. Morris and a chronological table compiled by Dr. Charles Singer and Sir John Squire.

Price:—in cover, with letterpress, on paper 5s; on linen 6s; dissected 7s 6d. Map only, paper flat 2s 6d. Map of XVII Century London and environs, 1s.

## OUTLINE MAPS OF GREAT BRITAIN (No. 1)

In two sheets (a) Scotland, and (b) England and Wales; each 29 × 21½ inches, showing coast lines and rivers only, in bold black lines on paper suitable for drawing or colouring; will reduce photographically to ½ without loss. Of great use to scientific workers and educationalists in preparing distribution maps for publication.

Price:—3d per sheet.

For full particulars apply (mentioning this announcement) to  
The Director-General, Ordnance Survey Office, Southampton



---

---

# PROSYMNA

The Helladic Settlement preceding the Argive Heraeum

By CARL W. BLEGEN

With a Chapter on the Jewellery and Ornaments

By E. P. BLEGEN

In two volumes.

£7 7s net

Vol. I. 8 *plates in colour.*

Vol. II. 731 *illustrations and 52 plans*

Edition limited to 350 copies

Professor Blegen presents an account of the results of the expedition undertaken by the American School of Classical Studies describing the remains brought to light, the vestiges of the settlement itself, the deposits and burials of the Neolithic age, the Middle Helladic graves, and the late Helladic chamber tombs. The book concludes with general remarks on the chamber tombs, and detailed discussions of the jewellery, bronzes, terracottas, and pottery.

## THE MUSIC OF THE SUMERIANS BABYLONIANS AND ASSYRIANS

Described and Illustrated from original sources

By F. W. GALPIN

12 *plates.*

25s net

Thirty-six different forms of instruments are described and illustrated from contemporary representations and extant examples. The place that music occupied in temple ritual and civil life is discussed, and the musical scale in use is examined. For the first time a staff translation of the cuneiform notation is presented.

## MAPUNGUBWE

Ancient Bantu Civilization on the Limpopo

Reports on Excavations from February 1933 to June 1935. Edited on behalf of the Archaeological Committee of the University of Pretoria

By LEO FOUCHÉ

4 *plates in colour, 40 plates in monochrome, and 8 maps and plans*

50s net

CAMBRIDGE UNIVERSITY PRESS